

## ENCLOSURE B

December 8, 2003

### FACT SHEET

**Proposed National Pollutant Discharge Elimination System ("NPDES")  
General Permit No. CAG280000 for Offshore Oil and Gas Exploration, Development  
and Production Operations off Southern California.**

**Summary:** EPA, Region 9, is reopening the public comment period for its general NPDES permit for discharges from offshore oil and gas exploration, development and production facilities located in Federal waters off the coast of Southern California to receive public comment concerning modifications which EPA is proposing as a result of the January 9, 2001 meeting of the California Coastal Commission (CCC). The original public comment period for the permit ran from July 20, 2000 until September 5, 2000 and included a public hearing on August 23, 2000 (65 Fed. Reg. 45063). EPA prepared a revised general permit based on the comments which were received during the original comment period and also prepared a response to public comments.

On December 20, 2000, EPA submitted a certification to the CCC that the revised general permit was consistent with the approved California Coastal Management Plan (CMP). At the January 9, 2001 meeting, however, EPA made certain commitments to further revise the permit/fact sheet in response to concerns raised by the CCC. The modifications were: (1) for produced water discharges, inclusion in the permit of effluent standards based on the more stringent of EPA water quality criteria or California Ocean Plan objectives; (2) revision of the scope and timing of the study requirements in the permit for alternative disposal for certain discharges; and (3) revision of the fact sheet to include a description of a commitment by EPA regarding third party monitoring. With these changes, the CCC concurred that the permit was consistent with the CMP. However, after reconsidering the modification pertaining to produced water, EPA is further revising the permit to apply Ocean Plan objectives at the seaward boundary of the territorial seas (see section VIII.C below for more information). Since this change constitutes a modification of EPA's consistency certification, EPA is recertifying the permit to the CCC.

The recertification is also being submitted pursuant to Section 307(c)(1) of the CZMA rather than Section 307(c)(3)(A) which was the case for the December 20, 2000 certification. Recent revisions to CZMA regulations at 15 CFR 930.31(d) suggest that a general permit may be best considered a "Federal agency activity" addressed by Section 307(c)(1). EPA is also proposing to modify the effective date of the permit such that if the CCC does not concur with the permit, the permit would not become effective for a particular facility until an individual consistency certification had been submitted and concurred upon by the CCC, or the Secretary of

Commerce had overridden a CCC objection. The revised effective date is discussed in more detail in Sections II.F and VIII.C.4 below.

Considering the delays which have occurred in the permit issuance, EPA is also proposing to accelerate the schedule for produced water sampling for determining reasonable potential to exceed applicable water quality criteria. The revised permit would require a total of 12 samples taken during the first year of the permit rather than 10 samples taken during the first 2 ½ years as was required by the December 20, 2000 permit. The revised permit also includes revised maximum discharge volumes for Platforms Harvest, Hermosa and Hidalgo, based on updated information from the operator. The revised permit and fact sheet also include a number of relatively minor editorial changes, clarifications and other revisions based on comments which have been received since the permit was certified to the CCC in December, 2000.

EPA is not reopening the entire permit for public comment at this time; public comment is only being requested regarding the items noted above. The proposed modifications of the general permit and fact sheet resulting from the CCC hearing are discussed in this fact sheet in Section VIII.C below.

The proposed general permit establishes effluent limitations, prohibitions, and other conditions on discharges from facilities in the general permit area. These conditions are based on the administrative record. EPA regulations and the permit contain a procedure which allows the owner or operator of a point source discharge to apply for an individual permit instead. A total of 22 facilities were covered under the previous general and individual permits. All of the 22 facilities are currently active. All of the current permittees have indicated a preference to be covered under the general permit and are required to apply using a Notice of Intent in accordance with the deadline in the general permit.

**Dates:** Comments on the proposed general permit must be received or postmarked no later than \_\_\_\_\_.

**ADDRESSES:** Public comments on the proposed permit should be sent to: Environmental Protection Agency, Region 9, Attn: Lisa Honor, CWA Standards and Permits Office (WTR-5), 75 Hawthorne Street, San Francisco, California 94105-3901.

**For Further Information Contact:** Eugene Bromley, EPA, Region 9, CWA Standards and Permits Office (WTR-5), 75 Hawthorne Street, San Francisco, California 94105-3901, or telephone (415) 972-3510. Copies of the proposed general permit, fact sheet and the response to public comments from the original public notice will be provided upon request.

**Administrative Record:** The proposed general permit and other related documents in the administrative record are on file and may be inspected any time between 8:30 a.m. and 4:00 p.m., Monday through Friday, excluding legal holidays, at the following address:

U.S. EPA, Region 9

CWA Standards and Permits Office (WTR-5)  
75 Hawthorne Street  
San Francisco, CA 94105-3901.

**Public Comments on Original Proposed General Permit:** Seven parties submitted comments on the original proposed general permit either by providing testimony at the public hearing, or by submitting written comments prior to the close of the comment period on September 5, 2000. One additional party submitted written comments slightly after the close of the comment period, but these comments were also included in the administrative record. The comments which were received by EPA were reviewed and considered in the formulation of the final determinations regarding the proposed general permit. However, EPA did not make any major changes to the proposed permit in response to the comments. The changes which were made are largely editorial changes and a number of other minor modifications. These changes are described in more detail in the response to public comments which, as noted above, is available upon request. As discussed below in Sections VIII.C and VIII.E, certain additional changes were made to ensure compliance with the Coastal Zone Management Act and the Magnuson-Stevens Fishery Conservation and Management Act.

Comments were also received on the Ocean Discharge Criteria Evaluation (ODCE) and Essential Fish Habitat (EFH) assessment which were prepared in support of the original proposed permit. The response to public comments for the original proposed permit includes responses to the comments which were received on the ODCE and the EFH assessment. The ODCE and EFH assessment were also revised in response to the comments which were received.

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## I. LEGAL BASIS

Section 301(a) of the Clean Water Act (“CWA” or “the Act”), 33 USC 1311(a), provides that the discharge of pollutants is unlawful except in accordance with the terms of a National Pollutant Discharge Elimination System (“NPDES”) permit. CWA Section 402, 33 USC 1342, authorizes EPA to issue NPDES permits allowing discharges on condition they will meet certain requirements, including CWA Sections 301, 304, 401, and 403, 33 USC 1311, 1314, 1341, 1343.

These statutory provisions require that NPDES permits include effluent limitations requiring that authorized discharges (1) meet standards reflecting levels of technological capability, (2) comply with EPA-approved state water quality standards, (3) comply with other state requirements adopted under authority retained by states under CWA Section 510, 33 USC 1370 and (4) cause no unreasonable degradation to the territorial seas, waters of the contiguous zone or the oceans.

Two types of technology-based effluent limitations are included in the proposed general permit. With regard to conventional pollutants, i.e., pH, biochemical oxygen demand (“BOD”), oil and grease, total suspended solids (“TSS”) and fecal coliform, CWA Section 301(b)(2)(E) requires effluent limitations based on “best conventional pollution control technology” (“BCT”). With regard to nonconventional and toxic pollutants, CWA Sections 301(b)(2)(A), (C), and (D) require effluent limitations based on “best available pollution control technology economically achievable” (“BAT”). Final effluent guidelines specifying BCT and BAT for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR 435, Subpart A) were issued January 15, 1993 and were published at 58 FR 12454 on March 4, 1993. CWA Section 301 requires compliance with BCT and BAT no later than March 31, 1989, 33 USC 1311(2)(C).

## II. GENERAL PERMITS AND PERMIT COVERAGE

**A. General Permit.** The Regional Administrator has determined that oil and gas facilities operating in the areas described in the proposed general NPDES permit are more appropriately and effectively controlled by a general permit than by individual permits. This decision is based on 40 CFR 122.28, and 40 CFR 125 (Subpart M) and EPA’s previous permit decisions on the Pacific Outer Continental Shelf (“OCS”), offshore California.

**B. Request for an Individual Permit.** Any operator authorized to discharge under a general permit may request to be excluded from coverage under the general permit by applying for an

individual permit as provided by 40 CFR 122.28(b)(3). The operator shall submit an application together with the reasons supporting the request to the Director, Water Division, EPA, Region 9 ("Director").

**C. Requesting Coverage Under the General Permit.** Procedures for requesting coverage for a general permit are provided by NPDES regulations at 40 CFR 122.28. In accordance with these regulations, all dischargers requesting coverage under the permit shall submit a Notice of Intent ("NOI"). Information to be provided includes the legal name and address of the owner or operator, the facility name and location, type of facility and discharges, lease block, previous permits, and the receiving water. All NOIs shall be signed in accordance with 40 CFR 122.22. The original proposed general permit was modified to require that NOIs (as well as other reports such as Discharge Monitoring Reports) be submitted to the California Coastal Commission ("CCC") as well as EPA and the Minerals Management Service ("MMS"). This change was made to better ensure compliance with the Coastal Zone Management Act (see Section VIII.C).

**D. Requiring an Individual Permit.** The Director may require any person authorized by this permit to apply for and/or obtain an individual NPDES permit. Any interested person may petition the Director to take action under this paragraph. Where the Director requires a discharger authorized to discharge under this permit to apply for an individual NPDES permit, the Director shall notify the discharger in writing that an individual permit application is required. Coverage under this proposed general permit shall automatically terminate on the effective date of the issuance or denial of the individual permit.

**E. Modification, Revocation, and Termination.** Procedures for modification, revocation, termination, and processing of NPDES permits are provided by 40 CFR 122.62-122.64.

**F. Effective Date of the Proposed General Permit.** To ensure a smooth transition and to provide current operators time to comply with the new permit requirements, the effective date of the permit is proposed as follows:

1. If the CCC concurs with the revised general permit, the effective date would be the first day of the month that begins at least 45 days after Federal Register notice of final permit issuance.

2. If the CCC objects to the revised general permit, the effective date would be delayed as described below in Section VIII.C.4 under a number of various scenarios which would be possible.

The effective date of the original proposed permit of July 20, 2000 had been the first day of the month which begins at least 45 days after the date of the CCC's concurrence with EPA's consistency certification. The proposed effective date has been revised due to current uncertainties concerning CCC approval of the permit, as discussed below in Section VIII.C.4.

**G. Deadlines for NOI Submittal.** For the production platforms in existence in the permit area as of the effective date of this permit, NOIs shall be submitted no later than the effective date of the permit. For new mobile exploratory drilling operations, NOIs shall be submitted not later than 30 days prior to commencement of discharges.

After submittal of the NOI for this general permit, coverage under any existing individual or general permit will no longer be effective. The existing general permit and individual permits will terminate after the effective date of this new general permit.

### **III. PREVIOUS PERMITS**

There are currently 22 production platforms located on the Southern California OCS which are presently covered by either an individual or general permit. The general permit was originally issued in 1982 and reissued in 1983. Fourteen production platforms are currently covered by the general permit. Eight individual permits were issued between 1978 and 1993. Of the 22 production platforms, only four facilities are operating under permits that contain the more stringent effluent guidelines for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category promulgated on March 4, 1993 (58 FR 12454). At this time, all facilities are operating under expired individual and general permits, that have been administratively extended pursuant to the 40 CFR 122.6.

### **IV. DESCRIPTION OF FACILITIES, OPERATIONS, AND NATURE OF DISCHARGES**

**A. Facility Coverage.** The proposed general permit applies to existing development and production platforms, and new exploratory drilling operations in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category, located in and discharging to specified lease blocks on the Pacific OCS, offshore Southern California. The OCS consists of the seafloor beyond three miles from shore. Facilities located within the California Territorial Seas are covered under separate permits issued by California Regional Water Quality Control Boards.

The existing development and production platforms which are covered by the proposed general permit are: Platforms A, B, C, Edith, Ellen/Elly, Eureka, Gail, Gilda, Gina, Grace, Habitat, Harmony, Harvest, Henry, Heritage, Hermosa, Hillhouse, Hidalgo, Hogan, Hondo, Houchin, and Irene. Additional platforms (such as Platforms Heather and Julius which have been proposed in the past) would not be eligible for coverage under the proposed general permit unless Region 9 determines that they are not new sources based on information submitted with the NOI. Such additional platforms would be considered new sources if they meet the definition at 40 CFR 435.11(q). However, EPA is not making any new source determinations at this time, since additional platforms are not anticipated to be installed during the term of this permit. Individual permits will be required for platforms not eligible for coverage under the proposed general permit.

The proposed general permit authorizes discharges in the same general area as the previous general and individual permits. Discharges would be authorized on 79 lease blocks



currently considered active by the Minerals Management Service (MMS) from Federal Lease Sale Nos. 35, 48, 53, 68, 80, RS2 and the 1966 and 1968 Federal Lease sales.

The permit area also includes 4 leases which expired on August 16, 1999, but for which appeals have been filed by the operators regarding these expirations. These leases are included in the permit to cover the possibility that they may be reinstated to active status by MMS. However, activity cannot take place on these leases unless the expirations are rescinded by MMS.

**B. Types of Operations.** “Exploratory” operations involve drilling to determine the nature of potential hydrocarbon reserves. “Development” operations involve the drilling and completion of production wells. Development operations may occur prior to, or simultaneously with, “production” operations, which involve the active recovery of hydrocarbons from producing formations. These operations are described in more detail in EPA’s Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (EPA 821-R-93-003, January, 1993) (“Development Document”).

New mobile exploratory drilling operations are not considered “new sources” under the NPDES permit program (40 CFR 122.2); however, they are considered “new dischargers” when they operate in areas of biological concern. Areas of biological concern are determined by considering the ten factors in the Ocean Discharge Criteria regulations (40 CFR 125 Subpart M).

EPA would also like to clarify that for existing production platforms, the proposed general permit authorizes discharges from exploratory wells drilled from the platform as well as production wells, provided the maximum discharge limits established for each platform are not exceeded. In some circumstances, it may be possible to drill an exploratory well from an existing platform rather than bringing in an exploratory drilling vessel. A separate NOI is not required for such an exploratory well. EPA believes this approach is appropriate since the processes and discharges resulting from an exploratory well are basically the same as for a production well.

The question has also been raised as to whether additional production wells from existing platforms would ever be considered new sources. Industry commenters have pointed out that with advances in drilling technology, it is possible to drill greater and greater distances from existing platforms. In response, the preamble to the final effluent limitations guidelines (58 FR 12457) clarifies that such wells would not be considered new sources. This is a consequence of the fact that for an existing platform, significant site preparation work for the platform as defined at 40 CFR Part 435.11(q)(2) would also have occurred prior to promulgation of the guidelines. All subsequent development and production activities from such platforms would not be considered new sources.

**C. Types of Discharges Authorized.** The proposed general permit authorizes the following discharges (subject to the terms and conditions of the permit) in all areas of coverage: drilling fluids and drill cuttings; produced water; well treatment, completion and workover fluids; deck drainage; domestic and sanitary waste; blowout preventer fluid; desalination unit discharge; fire control system test water; non-contact cooling water; ballast and storage displacement water; bilge water; boiler blowdown; test fluids; diatomaceous earth filter media; bulk transfer material overflow; uncontaminated freshwater; water flooding discharges; laboratory wastes; excess cement slurry; hydrotest water; and hydrogen sulfide gas processing waste water. Definitions and descriptions of these discharges are provided below and in Part V of the permit. During the public comment period for the original proposed permit, EPA invited comment as to whether the above discharge categories would cover all discharges at offshore facilities. No additional categories were provided to EPA during the public comment period.

The EPA considers it appropriate to include discharges from exploratory operations with development and production discharges in this permit because, although some development and production discharges do not result from exploratory operations, all exploratory discharges are a subset of those occurring in development and production.

Concern has been previously expressed that the precise location of future exploratory drilling operations are not known at the present time, and the terms of the general permit may be inadequate in some situations. As noted above in section II.D, EPA will require an individual NPDES permit when the terms of the general permit are inappropriate. The procedures for initiating exploratory operations include other opportunities for public involvement and comment. Operators who wish to initiate exploratory operations must submit Exploration Plans to MMS for approval, in accordance with 30 CFR 250, Subpart B. These Plans are comprehensive covering all aspects of the exploration process. Once a plan is accepted for review, the MMS sends the exploration plan to the Governor and the CZM agency of the affected state for comment. The MMS considers comments received as part of the exploration plan's technical and environmental review and approval process. Similarly, the CCC considers comments received during the public review/comment period associated with its consistency review of the exploration plan.

During these two review processes (MMS and CCC), issues will have been identified and the appropriate NPDES permitting mechanism and requirements identified. If all approvals are granted, then the operator will submit an application to EPA, requesting permit coverage. MMS and CCC will provide direction to EPA regarding any special permit conditions necessary to be protective of coastal and marine resources and public health. During the review process, site-specific concerns such as impacts to hard bottom habitat and or to other sensitive areas such as the Channel Islands Marine Sanctuary will be evaluated.

The last exploratory well drilled in the Southern California OCS occurred in 1989. There are no drilling vessels available in the Southern California OCS at this time. Thirty-six (36) of the 79 active OCS leases offshore California are undeveloped. All activities on these leases have been suspended as a result of litigation. While OCS operators could propose

exploratory drilling on other existing leases, no exploratory drilling plans have been submitted to the MMS at this time, and none are expected during the 5-year term of the permit.

**D. Nature of Discharges.** The following discharges are authorized by the proposed general permit. Not every facility will have each discharge and some of the discharges may be combined at one disposal pipe. The permit contains provisions requiring the more stringent monitoring and effluent limitations for the combined wastestreams. The most common combinations are some of the smaller discharges such as deck drainage routed through the oil and water separator and discharged along with the produced water.

Discharge 001 - Drilling Fluids and Cuttings. "Drilling fluid" means the circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure. A water-based drilling fluid is the conventional drilling mud in which water is the continuous phase and the suspended medium for solids, whether or not oil is present. An oil based drilling fluid has diesel oil, mineral oil, or some other oil as its continuous phase with water as the dispersed phase.

"Drill cuttings" refers to the particles generated by drilling into subsurface geologic formations and carried to the surface with the drilling fluid.

Discharge 002 - Produced Water. "Produced water" refers to the water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.

Discharge 003 - Well Treatment, Completion, and Workover Fluids. "Well treatment" is a fluid used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled. "Well completion" fluids are salt solutions, weighted brines, polymers, and various additives used to prevent damage to the well bore during operations which prepare the drilled well for hydrocarbon production. "Workover fluids" means salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow safe repair and maintenance or abandonment procedures.

Discharge 004 - Deck Drainage. "Deck drainage" refers to any waste resulting from deck washing spillage, rain water and runoff from gutters and drains including drip pans and work areas within the facilities subject to this subpart.

Discharge 005 - Domestic and Sanitary Wastes. "Domestic waste" refers to materials discharged from sinks, showers, laundries, safety showers, eyewash stations, and galleys located within facilities subject to this subpart. "Sanitary waste" refers to human body waste discharged from toilets and urinals located within facilities subject to this subpart.

Discharge 006 - Blowout Preventer ("BOP") Fluid. These are fluids used to actuate the hydraulic equipment on blowout preventers.

Discharge 007 - Desalination Unit Wastes. This is wastewater associated with the process of creating fresh water from saltwater.

Discharge 008 - Fire Control System Test Water. This is seawater which is released during the training of personnel in fire protection and the testing and maintenance of fire protection equipment. The seawater may be treated with chlorine or other biocide to control fouling of the piping.

Discharge 009 - Non-contact Cooling Water. This is water which circulates across crude oil or produced water tanks, power generators or other machinery for the purpose of cooling. As implied by the name, this water does not come in contact with product, produced water or the machinery it cools, although it may be treated with biocide to prevent fouling in heat exchangers.

Discharge 010 - Ballast and Storage Displacement Water. This is seawater added or removed to maintain proper draft for the purpose of drilling vessel stabilization.

Discharge 011 - Bilge Water. This is seawater which collects in the lower internal parts of a drilling vessel's hull and may be contaminated with oil and grease or rust. Bilge water is directed to an oil/water separator before discharge, which occurs intermittently.

Discharge 012 - Boiler Blowdown. This is the discharge of circulation water and minerals from boilers necessary to minimize solids build-up in the boilers. This is another intermittent discharge.

Discharge 013 - Test Fluids. "Test fluids" are discharges that would occur if hydrocarbons are located during exploratory drilling and tested for formation pressure and content.

Discharge 014 - Diatomaceous Earth Filter Media. Diatomaceous earth is used on some production platforms to filter seawater which is subsequently used to make completion fluid. The completion fluid itself may also be filtered to remove suspended contaminants picked up in the well. Discharge 014 may include diatomaceous earth, contaminants removed from seawater, other materials removed from completion fluids, and filter backwash water.

Discharge 015 - Bulk Transfer Material Overflow. This discharge refers to bulk materials such as barite or cement which may be discharged during transfer operations from supply ships to the offshore facilities. Often this takes the form of excess "dust", composed of small particles of the bulk material, being blow through the loading system into the sea.

Discharge 016 - Uncontaminated Freshwater. Uncontaminated freshwater discharges come from wastes such as air conditioning condensate or potable water during transfer or washing operations.

Discharge 017 - Waterflooding Discharges. These discharges are associated with the treatment of seawater prior to its injection into a hydrocarbon-bearing formation to improve the flow of hydrocarbons from production wells. Seawater is taken aboard and treated to remove solids and dissolved oxygen; additional treatment may include flocculants, scale inhibitors, oxygen scavengers, and biocides. This wastestream also includes strainer and filter backwash water and excess treated water not injected.

Discharge 018 - Laboratory Wastes. This discharge includes small volumes of discharges associated with laboratory testing occurring on the offshore facilities. Given the small volume of the waste stream, it is not expected to pose significant environmental risks. The discharge may include freon, but because freon is highly volatile, it does not remain in aqueous state for long.

Discharge 019 - Excess Cement Slurry. This wastestream is the result of equipment washdown after a cementing operation.

Discharge 020 - Drilling Muds, Cuttings and Cement at the Seafloor. These wastes result from marine riser disconnect and well abandonment and plugging. Compared to discharge of fluids and cuttings (Discharge 001), these volumes are small.

Discharge 021 - Hydrotest Water - This is water used in the testing of the structural integrity of piping and other components on an offshore platform. This discharge may include chemicals such as corrosion inhibitors, oxygen scavengers or bactericide as necessary to protect the pipelines and other platform components.

Discharge 022 - H<sub>2</sub>S Gas Processing Wastewater - This is wastewater generated from a treatment process used by some platforms for the removal of sulfur from oil and gas.

EPA has established from extensive data review, as discussed in the Development Document, that drilling fluids and cuttings are the major pollutant sources discharged from exploratory and developmental drilling operations. Produced water and well treatment fluids are the major pollutant sources discharged from production operations.

Part I.A.5 of the permit clarifies that discharges other than those listed above, including pollutants which are not ordinarily present in the discharges, are not authorized by the permit. The types of pollutants which are "ordinarily present" in the discharges were analyzed in EPA's Development Document and guidelines studies for the industry. Pollutants or classes of pollutants which are consistent with those recognized in the Development Document are authorized by the permit.

In developing the general permit conditions, EPA has evaluated the concentrations of these pollutants relative to the levels allowed under Federal regulations. The pollutants and discharge parameters limited in each waste stream are summarized in Section V.A, and discussed in Sections V.B - V.J.

**E. Types of Waste Treatment.** The type of waste treatment utilized for the major discharges from offshore oil and gas operations is discussed in EPA's Development Document. A summary of the treatment received by the major discharges follows below.

For produced water, a number of alternative treatment processes are available including gas flotation, plate coalescers and gravity separators. ReInjection of produced water is also practiced by a number of platforms. Drilling mud toxicity is largely controlled through product substitution, i.e., the use of low toxicity materials in place of higher toxicity materials. When the toxicity limit or another drilling mud effluent limitation cannot be met, the mud is taken ashore for disposal. Sanitary waste treatment includes physical/chemical and biological treatment. Physical/chemical treatment includes evaporation-incineration, maceration-chlorination, and chemical addition. Biological treatment systems include aerobic digestion or extended aeration processes.

## **V. SPECIFIC PERMIT CONDITIONS**

**A. General.** The determination of appropriate conditions for each discharge was accomplished through: (1) consideration of technology-based effluent limitations to control conventional pollutants under Best Conventional Pollutant Control Technology ("BCT"); (2) consideration of technology-based effluent limitations to control toxic and nonconventional pollutants under Best Available Treatment Economically Achievable ("BAT"); and (3) an evaluation of the Ocean Discharge Criteria regulations assuming BAT and BCT were in place. Among other requirements, the Ocean Discharge Criteria regulations require a consideration of marine water quality criteria developed pursuant to Section 304(a)(1) of the Act. The technology-based requirements are discussed below in Sections V.B through V.G of this fact sheet. Limitations based on Ocean Discharge Criteria and water quality-based effluent limitations are found in Section V.H below. Best management practice requirements and other discharge limitations and prohibitions are discussed in Section V.I and V.J.

Section 301(b)(2)(A), (C) and (D) of the CWA requires by March 31, 1989, the application of BAT for toxic pollutants (40 CFR 401.14) and nonconventional pollutants, and BCT for conventional pollutants (pH, BOD, oil and grease, suspended solids, and fecal coliform). Since the deadline for compliance with BAT/BCT effluent limitations has passed, the permit must require immediate compliance with appropriate BAT/BCT limitations.

BAT and BCT effluent limitations guidelines were promulgated by EPA on March 4, 1993 (58 Federal Register 12454) for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category. These regulations establish BAT and BCT effluent limitations for drilling muds and cuttings, produced water, produced sand, well treatment, completion and workover fluids, deck drainage, and sanitary and domestic wastes. BAT and BCT effluent limitations have been included in the proposed general permit for the affected discharges.

Effluent limitations guidelines were not promulgated, however, for discharges 006 through 022 above. In the absence of promulgated effluent limitations guidelines for a particular discharge, permit conditions must be established using Best Professional Judgement ("BPJ")

procedures (40 CFR 122.43, 122.44, and 125.3). The proposed general permit incorporates BAT and BCT effluent limitations based on BPJ for discharges 006 through 022, as discussed in Section V.G.

Permits for discharges to state waters must ensure compliance with water quality standards and limitations imposed by the State as part of its certification of NPDES permits under Section 401 of the Act. Although the proposed general permit does not authorize discharges into state waters, and thus the California Regional Water Quality Control Boards did not certify the permit, potential effects and standards need to be considered. Potential impacts to state waters are considered as part of the coastal zone consistency certification requirements of the Coastal Zone Management Act, discussed below, and part of the CWA Section 403(c) and 40 CFR 125, Subpart M (Ocean Discharge Criteria) analysis. Although CWA 401 certification was not sought from the California Regional Water Quality Control Boards which are charged with water quality activities, EPA worked closely with staff from the Regional Water Quality Control Board-San Luis Obispo and carefully considered all comments provided by that agency.

#### **B. Drilling Fluids and Drill Cuttings (Discharge No. 01)**

1. Free oil & oil-based fluids. No free oil is permitted from the discharge of drilling mud, and drill cuttings, based on BCT effluent guidelines. The discharge of oil-based drilling fluids is prohibited since oil-based fluids would violate the BCT effluent limitations of no discharge of free oil. Compliance with the free oil limitation will be monitored by year-round use of the Static Sheen Test weekly (daily when drilling through a hydrocarbon bearing zone due to the higher risks of oil contamination) and before bulk discharges.

2. Diesel oil. The discharge of drilling fluids and cuttings which have been contaminated by diesel oil is prohibited by the proposed general permit, in accordance with the BAT effluent guidelines. Diesel oil, which is sometimes added to a water-based mud system, is a complex mixture of petroleum hydrocarbons, known to be highly toxic to marine organisms and to contain numerous toxic and nonconventional pollutants. The pollutant "diesel oil" is being used as an "indicator" of the listed toxic pollutants present in diesel oil which are controlled through compliance with the effluent limitation (i.e., no discharge). An "indicator" pollutant is a parameter the presence and control of which correlates well with other pollutants which are intended to be controlled via the indicator pollutant. The technology basis for this limitation is product substitution of less toxic mineral oil for diesel oil. Compliance with this limit must be demonstrated by the operator based on the drilling fluids inventory.

3. Mercury and cadmium in barite. In accordance with the BAT effluent guidelines, the proposed general permit contains limitations of 1 mg/kg mercury and 3 mg/kg cadmium in barite. Barite is a major constituent of drilling fluids. These restrictions are designed to limit the discharge of mercury, cadmium, and other potentially toxic metals which can occur as contaminants in some sources of barite. The justification for the limitation under BAT is product substitution. Operators can substitute "clean" barite, which meets the above limitations, for contaminated barite, which does not meet the limitations.

As a part of the effluent guidelines development, EPA investigated the availability of domestic and foreign supplies of barite to meet the cadmium and mercury limits. EPA considered the potential for the increased demand for clean barite stocks resulting from this rule to cause a rise in the cost of barite. (See the Development Document and also the document entitled "Economic Impact Analysis of Final Effluent Limitations Guidelines and Standards of Performance for the Offshore Oil and Gas Industry" (EPA 821-R-93-004, January, 1993) for a detailed discussion on the availability and economic achievability.) EPA concluded that "there are sufficient supplies of barite capable of meeting the limits of this rule to meet the needs of offshore drilling operations (58 FR 12480, March 4, 1993).

The proposed general permit allows the operator several alternative reporting methods to determine compliance with the cadmium and mercury limitation. The operators may have the barite tested using atomic absorption spectrophotometry or provide certification from the supplier documenting that the stock barite does not exceed concentrations of mercury and cadmium. Compliance with limitations, if tested, shall be reported on the Well Discharge Monitoring Report ("DMR") or certifications attached to the DMR, if provided by the supplier.

It should also be noted that the previous individual permits for Exxon's Platforms Harmony and Heritage include a limit of 2 mg/kg for cadmium based on BPJ. To ensure compliance with Section 402(o) of the Act (anti-backsliding), the proposed general permit limits cadmium in barite to 2 mg/kg for Exxon's Platforms Harmony and Heritage. All other dischargers are subject to the 3 mg/kg limit for cadmium in barite.

4. Toxicity of drilling fluids and cuttings. EPA has included a toxicity limit of 30,000 ppm on the Suspended Particulate Phase ("SPP") (a 96-hour LC50) on discharged drilling fluids as a technology-based control on toxicity and toxic and nonconventional pollutants. The numeric effluent limit is based on the BAT effluent guidelines. Compliance with the drilling mud toxicity limit will be monitored when the end-of-well is reached (at least 80% of well footage permitted by MMS). In cases where mineral oil pills are used near the end-of-well, the Region will accept the bioassay reports required for pills as the end-of-well report (see permit Part III.B.2.g.). A mineral oil pill is a specially formulated portion of drilling mud system usually used to free stuck pipe.

It is important to note the inverse relationship between the 96-hr LC50 value of 30,000 ppm SPP and toxicity. The 30,000 ppm limit is the concentration (of mud in the suspended particulate phase) at which 50% mortality of the tested organisms (*Mysidopsis bahia*) occurs. As the concentration where 50% mortality increases, this implies a less toxic drilling mud because less dilution is required to prevent 50% mortality; in other words, toxicity decreases as 96-hr LC50 values increase. Thus, the permit limit of 30,000 ppm SPP (96-hr LC50) is actually the minimum LC50 value which limits the maximum allowed toxicity for drilling mud discharges.

The proposed general permit requires permittees to maintain a mud inventory for each well drilled. Under the previous general permit, EPA approved numerous specialty additives



based on bioassay data and informed offshore operators of these determinations. This regulatory approach (the “clearinghouse” approach) has allowed operators to use these approved additives in drilling operations without conducting additional bioassays.

After review of the various issues regarding the use of the clearinghouse approach, EPA has decided to continue using the clearinghouse on a limited scale for drilling muds and additives. This limited clearinghouse has been in use for previous NPDES permits issued by EPA Region 9 for offshore platforms. The proposed general permit requires a demonstration of compliance with the overall toxicity limit for each mud system which is used and discharged. The term “mud system” refers to the major types of drilling muds which are used during the drilling of a single well. For example, drilling would probably commence with a spud mud for the first several hundred feet. Then a seawater gel mud might be used to a depth about 1,000 feet. Subsequently, a lightly treated lignosulfonate mud might be used to a depth of around 5,000 feet. Finally, a freshwater lignosulfonate system might be used for the remainder of the drilling operation to a depth of about 15,000 feet.

Typically a bulk discharge of 1,000 to 2,000 barrels of mud occurs when the mud system is changed. It is at these times (when these bulk discharges occur) that compliance with the permit’s toxicity limit must be demonstrated. The bulk discharges are the highest volume mud discharges and will include all specialty mud components added to each mud system. As such, EPA believes that the bulk discharges are the most appropriate discharges for which to require a demonstration of compliance with the toxicity limit. In the above example, four such demonstrations would be required for the drilling of the well.

Except for the final mud system used at the time maximum well depth is reached, this demonstration may make use of the clearinghouse which EPA, Region 9 has already implemented and is discussed further below. However, a bioassay is required for the final mud discharge irrespective of mud composition. This is the time when the maximum mud toxicity is likely to be reached due to the increased need for specialty additives at greater depths. Given the uncertainties of the methods for estimating mud toxicity, EPA believes that at least one actual bioassay per well should be required. Also, the Response to Comments accompanying the final effluent limitations guidelines points out that the NPDES permit program is based on “end-of-pipe” accountability (58 Federal Register 12496). Only an actual bioassay can truly demonstrate compliance with the mud toxicity limit. There, a minimum of 1 bioassay is required per well.

As discussed in the Development Document, EPA has determined that there are eight basic formulations of water based drilling muds in use for offshore drilling operations. These muds have been termed “generic drilling muds” and commonly referred to as muds 1 through 8. The lower 95% confidence limit LC<sub>50</sub> (worst-case bioassay result) for the generic muds, as determined by testing at EPA’s Gulf Breeze Laboratory, occurred at 30,000 ppm (Duke and Parrish, in “Results of the Research Program Sponsored by the Gulf Breeze Environmental Laboratory, 1976-1984, and their Application to Hazard Assessment”, June, 1984). Therefore, the toxicity limit represents the most stringent 96 hour LC<sub>50</sub> which would allow each generic

mud to be discharged. Specialty mud additives (such as biocides, lubricants or defoamers) are often added to the basic generic muds to deal with particular drilling problems which may arise. Generic muds including such additives may be discharged as long as the overall mud toxicity does not exceed the permit limit.

One drawback of the clearinghouse approach to mud additive regulation is the possibility that operators might combine several moderately toxic additives (individually approvable) in one mud and thereby exceed the permit's overall toxicity limit. In order to limit the possibility of such occurrences, EPA mud additive clearinghouse provides two levels of approval for specialty additives, general and conditional:

a. Additives with  $LC_{50} > 100,000$  ppm (SPP) when tested in a reference mud at the maximum usage rate are listed as acceptable for general use and discharge. The reference mud to be used for these tests is the lightly treated lignosulfonate mud (generic mud #7) which has been the most commonly used reference mud to date.

b. Additives where the  $LC_{50}$  is greater than 30,000 ppm and less than 100,000 ppm are conditionally listed as acceptable, contingent upon the additive's not being used in conjunction with other additives which in combination could result in violation of the permit's overall toxicity limit.

In all instances, regardless of whether an additive is listed as acceptable for general use or is conditionally accepted, the discharger is responsible for demonstrating compliance with the whole mud toxicity limit.

The above regulatory approach to mud additive regulation offers the following advantages: 1) Because the  $LC_{50}$  of most specialty additives is greater than 100,000 ppm, general listing of acceptability for discharge, following an initial bioassay, can be given for most additives to be discharged, thus providing desirable flexibility for operators, and 2) it is unlikely that violations of the permit's whole mud toxicity limit (minimum of 30,000 ppm) would result from the combination of additives acceptable for general use and discharge. For example, if it is assumed that (a)  $LC_{50}$  of the reference mud = 500,000 ppm, (b) mud constituent toxicity is additive according to equation (1) below, and (c) additive usage by weight is small relative to the basic mud constituents, four specialty additives with  $LC_{50} = 100,000$  ppm each used at its maximum concentration (an unlikely scenario) would be necessary to produce a mud with an overall toxicity limit approximating the permit limit of 30,000 ppm. A review of muds and additives typically used offshore Southern California shows that such a combination would be very unlikely. Listing and toxicity information for mud additives may be obtained from Region 9.

It should also be noted that the above provisions pertaining to specialty additives apply only to generic muds #2-#8. The overall mud toxicity limit in the permit is based on the toxicity of mud #1 with no specialty additives included. However, this does not preclude the use of specialty additives in mud #1. Such additive could be included in mud #1 if the additives did not

increase the toxicity of the mud (i.e., the toxicity of the additive is lower than the toxicity of the mud which would be replaced), or if the basic components of mud #1 were used at concentrations lower than the maximum allowed concentration to offset the effects of specialty additives.

Estimates of joint toxicity of muds containing conditionally accepted additives may be made using equation (1) from the report entitled "Separate and Joint Toxicity to Rainbow Trout of Substance Used in Drilling Fluids for Oil Exploration" (Sprague and Logan, *Environmental Pollution*, Volume 19, No. 4, August, 1979):

$$(1) \quad \frac{10^6}{LC_t} = \frac{C_g}{LC_g} + \sum_{i=1}^N \frac{C_i}{LC_i}$$

where  $LC_t$  is the 96 hour  $LC_{50}$  of the generic mud including mud additives in ppm and

$C_i$  is the concentration of the  $i$ th additive in ppm

$LC_i$  is the 96 hour  $LC_{50}$  of the  $i$ th additive in ppm

$C_g$  is the concentration of the generic mud in ppm

$LC_g$  is the 96 hour  $LC_{50}$  of the generic mud in ppm

5. Synthetic-based drilling fluids ("SBFs"). In response to its performance needs and regulatory requirements, the oil and gas extraction industry has developed SBFs. The new drilling fluids are used in cases, such as deep water or directional drilling, where use of water based fluids is not practical and traditional oil-based drilling fluids would have been used. EPA has recently promulgated effluent limitations guidelines for SBFs (66 Federal Register 6895, January 22, 2001). However, on the California OCS, the industry has indicated that it has no immediate plans to use SBFs and has not requested that discharge authorization be included in the general permit; thus this permit does not authorize discharge for this class of drilling fluids and cuttings. The industry may request a modification of the general permit to include discharge authorization with appropriate effluent limitations, or operators may request an individual permit.

Any such permit modification or application would be conducted in accordance with the procedures at 40 CFR 124.5 which include the same opportunities for public review and comment as the issuance of a permit itself. A permit modification to allow the discharge of SBFs in the future would also not be subject to the anti-backsliding provisions of section 402(o) of the CWA. Although the proposed permit prohibits the discharge the SBFs, the prohibition is intended as a clarification of the current permit, and is not a technology-based effluent limit nor a water quality-based effluent limit. As such, section 402(o) of the CWA would not prohibit a future permit modification to authorize discharges of SBFs.

6. Other. In addition to the other monitoring requirements discussed above, the proposed general permit requires that the permittee monitor and report the total volume of muds and cuttings which are discharged. The volumes of muds and cuttings shall be monitored and reported separately.

### **C. Produced Water (Discharge No. 002)**

1. Oil and Grease. The proposed general permit requires that oil and grease concentrations in produced water discharges from all facilities not exceed 29 mg/l monthly average and 42 mg/l maximum daily. These oil and grease limits were promulgated as BAT for offshore facilities (40 CFR 435.13) as indicators of toxic and nonconventional pollutants.

The testing method for oil and grease in previous permits of OCS oil and gas facilities off Southern California has specified the collection of four samples in a 24-hour period that are analyzed separately and the values averaged. For the proposed general permit, EPA allows, as an alternative, the use of only one grab sample instead of four. Sampling for oil and grease becomes compromised when samples are re-poured into additional containers because the oil and grease sticks to the sides of the containers.

The most recent Gulf of Mexico general NPDES permit also allows the option of using only 1 grab sample. Some operators have indicated that they will continue to sample using 4 grab samples (analyzed separately) as a matter of policy. EPA recommends the use of 4 separately analyzed grab samples as this reduces the likelihood of an individual sample being the sole sample indicating an exceedance of the permit limit. Using 4 samples allows for an averaging of the potentially high sample. EPA believes that the authors of the test method did not intend for the samples to be compromised by re-pouring individual samples into one container (possibly reducing the final concentration of oil and grease), and therefore EPA will allow the collection and analysis of one sample, which will more accurately reflect the total concentration of oil and grease in the discharge. It should also be noted that if 4 samples are taken for oil and grease for a 24-hour period, the maximum value for reporting purposes under Part III.A.2.a.i. of the permit would be based on the average of the 4 samples rather than the maximum of the 4 samples.

In addition, in response to a comment from MMS on the original proposed permit, the permit provides that EPA may reopen and modify the permit to require four samples taken at equally-spaced intervals over a 24-hour period. Such a modification would be made if future information should ever indicate that this is needed to ensure representative sampling.

2. Flow Rate. Measurement of the produced water flow rate is required daily. This requirement serves to determine compliance with, or the possible future need for, effluent limitations in the permit. The basis for this requirement is Section 308 of the Act.

3. Test Method for Oil and Grease Analysis. EPA has finalized a new test method (Method 1664, N-Hexane) for oil and grease analysis, which replaces the Freon Extraction Method (EPA Method Number 413.1) (64 Federal Register 26315). The regulations became effective June 14, 1999. To accommodate regulated entities' concerns that the requirement to change from CFC-based methods to Method 1664 could result in non-compliance, and based on an extension of the time for laboratory use of CFC-113 to the year 2005, EPA has decided to approve use of Method 1664 but not withdraw approved use of the CFC-based methods.

However, EPA strongly encourages dischargers to use Method 1664 in place of the CFC-based methods as soon as possible.

Some commenters on previous permits have recommended that EPA consider requiring continuous monitoring (also called on line monitoring) of oil and grease in produced water (to provide an immediate notification to operators of any noncompliance with permit limits). For the previous permits, EPA did not include such a requirement due to problems with fouling of available monitoring equipment by produced water discharges. EPA reconsidered such a requirement for the original proposed permit, but again it appears that the available equipment is still unreliable for produced water. Therefore, this type of requirement was not included in the proposed general permit. However, the proposed general permit does require that permittees operating under the permit jointly (or individually) submit a report to EPA 1 year prior to the expiration date of the permit which reevaluates available technology at that time. EPA will reconsider such technology for the next permit reissuance since this is a matter of continuing interest to commenters.

#### **D. Well Treatment, Workover and Completion Fluids (“TWCs”) (Discharge No. 003)**

1. Free oil: In accordance with BCT effluent limitations guidelines, the discharge of free oil is prohibited in TWCs discharged in accordance with the proposed general permit. The test method for determining compliance with this limit is the Static Sheen Test (Appendix 1 to 40 CFR Part 435, Subpart A).

2. Oil and grease: Although oil and grease is a conventional pollutant subject to BCT, it is also an indicator of toxic pollutants (and it thus limited under BAT as well). Promulgated (offshore) BAT limitations for oil and grease in TWC are 29 mg/l monthly average and 42 mg/l daily maximum (58 Federal Register 12506, March 4, 1993). These limits have been included in the proposed general permit in accordance with the effluent limitations guidelines. Monitoring for oil and grease is required once per job (which consists of the short-term use of one of these materials). In addition, monitoring for free oil is required once per discharge using the static sheen test.

3. Discharge Volume: Based on Section 308 of the Act, the proposed general permit requires estimated discharge volumes to be reported on a per job basis.

**E. Deck Drainage (Discharge No. 004).** In accordance with BCT/BAT effluent limitations guidelines for this industry, the proposed general permit requires that there be no free oil in discharges of deck drainage. Visual observations of the receiving waters are required to determine compliance with this limit. In addition, a monthly estimate of the flow rate is required.

**F. Domestic and Sanitary Waste (Discharge No. 005).**

1. Floating Solids. In accordance with BCT effluent limitations guidelines, no floating solids are allowed in the discharges of sanitary wastes for facilities intermittently manned, or for facilities permanently manned by nine or fewer persons. This limit also applies to domestic wastes for all facilities. Prohibition on floating solids is equivalent to the current level of control for sanitary wastes in existing permits. Visual observations of the receiving waters in the vicinity of the discharges must be conducted each day during daylight hours to monitor compliance with this limit.

Any facility using a Marine Sanitation Device (“MSD”) that complies with pollution control standards and regulations under Section 312 of the Act is considered to be in compliance with the prohibition of floating solids.

2. Foam. The BAT effluent guidelines for domestic wastes require no discharge of foam. Visual observations of the receiving waters in the vicinity of the discharges must be conducted each day during daylight hours to monitor compliance with this limit.

3. Chlorine. Chlorine is added to the sanitary waste stream to control fecal coliform in the discharge. The proposed general permit includes the BCT effluent limitation guideline of at least 1 mg/l Total Residual Chlorine (“TRC”) (to be maintained as close as possible to this concentration) for facilities permanently manned by 10 or more persons. Any facility using a MSD that complies with pollution control standards and regulations under Section 312 of the Act is considered to be in compliance with the TRC limitation. Monthly monitoring of this discharge is required to demonstrate compliance with this limit.

4. U.S. Coast Guard Regulations at 33 CFR 151. In accordance with the BCT effluent guidelines, the proposed general permit requires that permittees comply with U.S. Coast Guard regulations at 33 CFR 151 with regards to discharges of domestic wastes other than floating solids. This condition is intended primarily to incorporate the U.S. Coast Guard regulations concerning discharges of garbage and plastics.

**G. Miscellaneous Discharges (Discharge Nos. 006-022).** Discharges 006-022 are miscellaneous discharges which often accompany offshore oil and gas operations and are authorized and regulated by the proposed general permit. These discharges have been authorized in previous permits and the effluent limitations in the proposed general permit are at least as stringent as in previous permits to ensure compliance with anti-backsliding requirements.

1. BPJ Effluent Limitations. Neither the promulgated Offshore effluent guidelines nor the proposed Coastal guidelines address wastestreams 006 through 022 described above in Section IV.D of this fact sheet. EPA’s basis for not addressing these wastestreams in either guideline is that they are more appropriately controlled by regionally issued NPDES permits such as Region 9’s proposed permit. In the absence of promulgated effluent limitations guidelines, permit conditions must be established using BPJ procedures (40 CFR 122.43, 122.44 and 125.3). Effluent limitations developed through BPJ for these discharges are discussed below.

2. **Floating Solids.** EPA has determined that the BCT effluent guideline of no discharge of floating solids from the discharge of sanitary wastes should apply to discharges 006 through 022 as well. These types of discharges have been subject to this limitation in previous permits and past practices have not resulted in violations of this limitation. No technology performance data available to EPA indicate that a more stringent standard is appropriate at this time. Therefore, EPA has included this BCT effluent limitation on floating solids in the proposed general permit for discharges 006 through 022. Visual observations of the receiving waters in the vicinity of the discharges must be conducted each day during daylight hours to monitor compliance with this limit.

3. **Foam.** EPA has determined that the BAT effluent guideline of no discharge of foam in domestic wastes should apply to discharges 006 through 022 as well. These types of discharges have been subject to this limitation in previous permits and past practices have not resulted in violations of this limitation. No technology performance data available to EPA indicate that a more stringent standard is appropriate at this time. Therefore, EPA has included this BAT effluent limitation for foam in the proposed general permit for discharges 006 through 022. Visual observations of the receiving waters in the vicinity of the discharges must be conducted each day during daylight hours to monitor compliance with this limit.

4. **Flow Monitoring.** The proposed general permit also requires monitoring of the flow rate for certain miscellaneous discharges including noncontact cooling water, ballast and storage displacement, bilge water, test fluids, excess cement slurry, hydrotest water, and H<sub>2</sub>S gas processing wastewater.

**H. Ocean Discharge Criteria.** Section 403 of the Act requires that an NPDES permit for a discharge into marine waters located seaward of the inner boundary of the territorial seas be issued in accordance with guidelines for determining the potential degradation of the marine environment. These guidelines, referred to as the Ocean Discharge Criteria (40 CFR Part 125, Subpart M) and Section 403 of the Act are intended to "prevent unreasonable degradation of the marine environment and to authorize imposition of effluent limitations, including a prohibition of discharge, if necessary, to ensure this goal" (49 Federal Register 65942, October 3, 1980).

If EPA determines that the discharge will cause unreasonable degradation, an NPDES permit will not be issued. If a determination of unreasonable degradation cannot be made because of a lack of sufficient information, EPA must then determine whether a discharge will cause irreparable harm to the marine environment and whether there are reasonable alternatives to on-site disposal. To assess the probability of irreparable harm, EPA is required to make a determination that the discharger, operating under appropriate permit conditions, will not cause permanent and significant harm to the environment. If data gathered through monitoring indicate that continued discharge may cause unreasonable degradation, the discharge must be halted or additional permit limitations established.

The determination of unreasonable degradation must be based on the following ten factors: 1) quantities, composition, and potential for bioaccumulation or persistence of the

pollutants discharged; 2) potential transport of such pollutants; 3) the composition and vulnerability of biological communities exposed to such pollutants; 4) the importance of the receiving water area to the surrounding biological community; 5) the existence of special aquatic sites; 6) potential impacts on human health; 7) impacts on recreational and commercial fishing; 8) applicable requirements of approved Coastal Zone Management Plans; 9) marine water quality criteria developed pursuant to Section 304(a)(1) of the CWA; and 10) other relevant factors.

Of the discharges normally accompanying offshore oil and gas operations, drilling muds and cuttings, and produced water are generally considered to have the greatest potential for degradation of the marine environment. In response to the requirements of Section 403 of the CWA, EPA previously funded an Ocean Discharge Criteria Evaluation ("ODCE") to assess the impacts of muds and cuttings, produced water and other discharges on the California OCS (JRB Associates, 1984).

In addition to the 1984 ODCE report, EPA reviewed a number of more recent reports to update the previous assessment of the environmental effects of discharges from offshore oil and gas facilities on the Southern California OCS. These reports included: 1) MMS Environmental Impact Statement for the "Outer Continental Shelf Oil and Gas Leasing Program: 1997-2002," August 1996, 2) MMS-funded report "Disturbance of Deep-Water Communities by Exploratory Oil and Gas Operations in the Santa Maria Basin and Santa Barbara Channel," September 1995, 3) MMS-funded report entitled "California OCS Phase II Monitoring Program", 1991, 4) Offshore Operators Committee-funded report "Gulf of Mexico Produced Water Bioaccumulation Study," April 1997, 5) Western States Petroleum Association-funded study "Potential for Bioaccumulation of Metals and Organic Chemicals from Produced Water Discharges Offshore in the Santa Barbara Channel, California: A Review," August 1997, and 6) MMS-funded report entitled "Monitoring Assessment of Long-Term Changes in Biological Communities in the Santa Maria Basin: Phase III," November 1995.

EPA considers the MMS study "Monitoring Assessment of Long-Term Changes in Biological Communities in the Santa Maria Basin: Phase III" to be of particular importance given the fact that it was a long-term study conducted specifically in Southern California OCS waters. This study, which focused on drilling-related discharges such as drilling muds, found no significant consistent, long-term effects from the discharges.

Produced water, the other major discharge from offshore facilities, was recently evaluated in the report entitled "Potential for Bioaccumulation of Metals and Organic Chemicals from Produced Water Discharges Offshore in the Santa Barbara Channel, California: A Review," dated August 1997. No significant adverse effects from produced water discharges were identified in this study which EPA believes would constitute unreasonable degradation of the marine environment.

An update of the 1984 ODCE has also been prepared entitled "Ocean Discharge Criteria Evaluation South and Central California for NPDES Permit No. CAG2800000" dated October, 2000 which re-evaluates all the discharges which are authorized by reissued permit. After



review of the updated ODCE, the studies noted above, and other available data in the administrative record for the permit, EPA concluded that the discharges would not cause unreasonable degradation of the marine environment. As discussed in the response to public comments, EPA also considered public comments which were received on a draft ODCE which accompanied the original proposed general permit.

After reviewing the available information, EPA has included a variety of technology-based and Section 403-based requirements in the proposed general permit to ensure compliance with the Ocean Discharge Criteria regulations. These requirements include: discharge restrictions (volume and nature of discharge) on drilling fluids, cuttings and produced water, requirement for the use of barite with low trace metal contaminant levels for drilling fluids, limitations on the discharge of oil-based muds and diesel oil as a mud additive, an oil and grease limitation for produced water, a “no free oil” limitation on numerous discharges from the offshore facilities, the static sheen test for detection of free oil before discharges occur, limitations on solids and chlorine for sanitary waste discharges, and chronic toxicity testing requirements for the discharge of produced water.

The Ocean Discharge Criteria regulations require that the reopener clause found at 40 CFR 125.123(d)(4) be included in permits issued pursuant to 40 CFR 125.123(c) (no irreparable harm). As noted above, EPA concluded that no unreasonable degradation would occur. Thus, the reopener clause is optional. However, EPA included the re-opener clause in the proposed general permit to ensure that any necessary permit modifications may be made if new information should unexpectedly indicate that the discharges could cause unreasonable degradation of the marine environment. Further, the reopener was modified slightly to note that the permit may be modified as provided by NPDES regulations at 40 CFR 122.62(a)(2). These regulations provide for permit modifications based on new data which would have justified the application of different permit conditions at the time of issuance. For general permits, the regulations also provide that cumulative effects may be considered in making this determination and hence, cumulative effects are cited in reopener clause.

#### 1. Water Quality-Based Effluent Limitations for Produced Water.

a. General Approach. The CWA establishes two principal bases for effluent limitations. First, existing dischargers are required to meet technology-based effluent limitations that reflect the best controls available considering economic impact. Second, for ocean discharges, additional requirements are imposed to assure compliance with the Ocean Discharge Criteria regulations including a consideration of marine water quality criteria. For the Federal waters on the Southern California OCS where no State standards apply, EPA used its marine water quality criteria (Federal Register Vol. 63, No. 237, December 10, 1998) and EPA’s “Quality Criteria for Water 1986” (the “Gold Book”) in evaluating the compliance of the discharges with the Ocean Discharge Criteria regulations (see also Section VIII.C concerning applicability of California Ocean Plan criteria based on the Coastal Zone Management Act). For ammonia where the criteria are pH, temperature and salinity dependent, EPA included in the permit a generalized value of 1300 ug/l from EPA’s document entitled “Ambient Water Quality Criteria for Ammonia (Saltwater) - 1989”, using the following conservative assumptions:

temperature of 15 °C, salinity of 30 g/kg and pH of 8.1. However, the permit also notes that if platform-specific limits for ammonia are developed based on the reasonable potential analysis to be submitted during the permit term (see Section V.H.1.e below), an alternate criterion may be used which considers the platform-specific oceanic conditions.

To control pollutants beyond the CWA technology-based requirements and to meet water quality standards (or Federal criteria), EPA uses an integrated strategy consisting of both biological and chemical methods to address toxic and nonconventional pollutants. Section 101(a) of the CWA states; “The objective of this Act is to restore and maintain the chemical, physical and biological integrity of the Nation’s waters,” 33 USC 1251(a). Taken together, chemical, physical, and biological integrity define the overall ecological integrity of an aquatic ecosystem.

The CWA describes various uses of waters that are considered desirable and should be protected. These uses include public water supply, recreation, and propagation of fish and wildlife. The States are free to designate more specific uses, or to designate uses not mentioned in the CWA. For Federal waters, there are no designated beneficial uses. The receiving waters have been classified by EPA for the following beneficial uses: aesthetic enjoyment; propagation and sustenance of marine life; scientific research and training; sport fishing; commercial fishing; pleasure boating; commercial and naval shipping; and industrial water supply. Numeric water quality criteria for marine propagation and fish consumption were used for the reissued permit.

b. Pollutants of Concern. In developing a list of pollutants to be regulated numerically by the permit, EPA considered a number of sources including: the Development Document, produced water monitoring data from Gulf of Mexico offshore oil and gas facilities and from Exxon’s Santa Ynez Unit platforms offshore Southern California. Based on these data and discussions with offshore operators, California Coastal Commission staff and other interested parties, the following parameters were selected for development of water quality-based effluent limitations: ammonia, arsenic, cadmium, copper, cyanide, lead, manganese, mercury, nickel, selenium, silver, zinc, benzene, benzo (a) anthracene, benzo (a) pyrene, chrysene, benzo (k) fluoranthene, benzo (b) fluoranthene, dibenzo (a,h) anthracene, hexavalent chromium, phenol, toluene, ethylbenzene, naphthalene, 2,4-dimethylphenol, and sulfides. From this list, the previous general permit only requires monitoring for arsenic, cadmium, total chromium, copper, cyanide, lead, mercury, nickel, silver, zinc, and phenols. The individual permits which EPA issued in 1993 included monitoring for benzene, benzo (a) pyrene, toluene, ethylbenzene, naphthalene, and 2,4-dimethylphenol, but still did not include the entire list of pollutants for the proposed general permit. In addition, as discussed in Section V.H.2 below, the proposed general permit requires whole effluent toxicity monitoring for produced water which was not included in any of the previous permits.

c. Establishing Reasonable Potential. Regulations at 40 CFR Part 122.44 specify the minimum requirements and general type of analyses necessary for establishing permit limits. The permitting authority, which in this case is EPA, must first establish whether a

discharge causes, has the reasonable potential to cause, or contributes to an instream excursion above narrative or numeric criteria (40 CFR 122.44(d)(1)). To do this, discharger data must be analyzed. For the Southern California OCS operations, incomplete data are presently available (except in a few instances as discussed below in Section V.H.1.e) to perform a reasonable potential analysis for the parameters which have been found in the discharges from the offshore facilities. In such circumstances, EPA's Technical Support Document for Water Quality-Based Toxics Control ("TSD") (EPA/505/2-90-001) recommends that additional data be gathered prior to permit issuance, or that additional data be gathered during the term of the permit. For the proposed permit, EPA has included a requirement for the dischargers to sample and analyze for the parameters of interest over ten calendar quarters. The TSD generally requires ten samples as a minimum to perform the "reasonable potential" analysis. If the additional data indicate a reasonable potential to cause or contribute to an excursion above the criteria, the permit provides that additional effluent limits will be established as appropriate.

d. Dilution Modeling and Calculating Compliance with Criteria. The Ocean Discharge Criteria at 40 CFR 125.121(c) allow a 100-m (330-ft) radius mixing zone for initial dilution of discharges. At the edge of the mixing zone, marine water quality criteria shall be met. The determination of whether a discharge meets water quality criteria at the edge of a mixing zone requires the computation of the amount of dilution that occurs in the mixing zone between the discharge location and the edge of the mixing zone. This calculation of dilution is usually accomplished through modeling.

There are several dilution models available for a variety of discharge scenarios. EPA's Office of Research and Development (ORD) reviews models and supports a number of models through research and assistance. Models that ORD has reviewed and supports are documented in guidance manuals at the ORD web page at <http://www.epa.gov/CEAM/>. No one model is consistently used for a specific application, since there are many factors that distinguish one application from another. This results in different models sometimes being appropriately used for the same application (i.e., Superfund groundwater modeling, CWA Section 301(h) waiver determination etc.). EPA staff (with technical assistance) determines which model is most appropriate for the application. For reasons discussed below, EPA has selected the PLUMES-UM model for the produced water discharges on the Southern California OCS.

The single port models which evolved into PLUMES-UM were first developed in the early 1970s for a variety of discharge situations, including atmospheric cooling tower plumes and ocean discharges. Over the years, these models have been generalized and have undergone rigorous verification. The cooling tower model was published in 1976 and 1978 (Winiarski, L.D. and W.E. Frick, "Cooling Tower Plume Model", CERL, USEPA, Corvallis, OR. EPA-600/3-76-100, September 1976)(Winiarski, L.D., W.E. Frick, and A. Carter, "A Simple Method of Predicting Plume Behavior From Multiple Sources", Proceedings of the Second Waste Heat Management and Utilization Conference, Univ. of Miami, Coral Gables, FL, December 1978). The first ocean single-port version (OUTPLM) was published in 1979 (Teeter, A.M. and D.J. Baumgartner, "Prediction of Initial Mixing for Municipal Ocean Discharges," CERL, USEPA, Corvallis, OR. CERL Pub. 043), followed by the merging model

(UMERGE) in 1985 (Muellenhoff, W.P., A.M. Soldate, D.J. Baumgartner, M.D. Schuldt, L.R. Davis, and W.E. Frick, "Initial Mixing Characteristics of Municipal Ocean Discharges", Pacific Division, ERL-N, Newport, OR. EPA-600/3-85-073a and b), PLUMES-UM in 1994 (Baumgartner, D.J., W.E. Frick, and P.J.W. Roberts, "Dilution Models for Effluent Discharges", Third Edition, Pacific Ecosystems Branch, ERL-N, Newport, OR. EPA/600/R-94/086, Jun 1994, 189 pp), and, finally, the Windows version now under development (Keyes, J. and W.E. Frick, "A Case Study Using the EPA's Water Quality Modeling System, the Windows Interface for Simulating Plumes (WISP)", Hydrology Days, 16-20 Aug 1999, Ft. Collins, CO). PLUMES-UM also contains the multi-port RSB model which calculates initial dilution and produces the input files as described in the modeling guidance, "Dilution Models for Effluent Discharges" (EPA/600/R-94/086, June 1994).

In 1980, cooling tower discharges were extensively studied by the Argonne National Laboratory by Poliscastro et al. (Poliscastro, A.J., R.A. Carhart, S.E. Ziemer, and K. Haake, "Evaluation of Mathematical Models for Characterizing Plume Behavior from Cooling Towers, Dispersion From Single and Multiple Source Draft Cooling Towers", US Nuclear Regulatory Commission Report NUREG/CR-1581 (Vol. 1)); (Carhart, R.A., A.J. Poliscastro and S. Ziemer, "Evaluation of Mathematical Models for Natural-draft Cooling-Tower Plume Dispersion", Atmospheric Environment, Vol 16, pp. 67-83). The air version of PLUMES-UM was one of 15 models evaluated in this study (all these models stem from the original Lagrangian model developed by Winiarski and Frick (W-F model) beginning in 1973). The W-F model (1978) ranked first and third in two verification categories, length and rise, indicating that the model closely modeled the cooling tower plumes. It is noteworthy that all 39 cooling tower plumes used in the evaluation had Froude numbers less than one (ranging from 0.44 to 0.89, similar to Froude numbers for the Southern California OCS dischargers).

Prior to publishing PLUMES, the Newport Marine Branch of EPA's ORD conducted an extensive analysis of the five models included in the above referenced 1985 guidance (Baumgartner, D.J., W.E. Frick, W.P. Muellenhoff, and A.M. Soldate, Jr., "Coastal Outfall Modeling: Status and Needs," Proceedings Water Pollution Control Federation 59<sup>th</sup> Annual Conference. Los Angeles, CA., October 7, 1986). This is to date perhaps the most extensive plume model comparison ever conducted, consisting of thousands of runs spanning wide ranges of densimetric Froude number, stratification parameter, plume spacing, and other parameters. The analysis resulted in two conclusions. First, after some class averaging, all models predicted results within a factor of two of each other. Secondly, UMERGE, the direct predecessor of PLUMES-UM, compared more closely with any of the other four models than they did with each other.

In addition to comparison of models, PLUMES-UM and companion versions have been extensively verified, both in air and water. Frick, Winiarski, and others have published several verification studies (Cheung, V., 1991, "Mixing of a Round Buoyant Jet in a Current", Ph.D. Thesis, Dept. of Civil and Structural Engineering, Univ. of Hong Kong, Hong Kong). Independently, Valiant Cheung, in his Ph.D dissertation in which he adopts the W-F Lagrangian model, has extensive verification and comparisons that show the efficacy of the basic UM

modeling theory. Lee, Huang, and others similarly have established the veracity of the theory underlying the UM model (Lee, J.H.W. and V. Cheung, "Generalized Lagrangian Model for Buoyant Jets in Current. ASCE Journal of Environmental Engineering, Vol. 116, No. 6, pp. 1085-1106); (Fergen, R.E., and H. Huang, "Comparison of SEFLOE II Field Initial Dilution Data With Two EPA Models: UM and CORMIX", WEFTEC'94, Chicago).

One of the strengths with PLUMES-UM is the model's ability to handle discharges with low densimetric Froude numbers. The densimetric Froude number is a dimensionless parameter defined as  $u/(g'D)^{1/2}$ , where  $u$  is the plume's effluent velocity (momentum),  $g'$  is the reduced gravity (acceleration of gravity multiplied by the density difference divided by the water density), and  $D$  is the plume diameter. It is one similarity number that allows modelers to scale an experiment so that it replicates the full-sized prototype. Given that all similarity numbers match, the experiment and the actual plumes will have the same shape, relative dilution, etc., when plotted in dimensionless terms. For example, at a distance measured in outfall diameters, both will have the same rise measured in diameters (but the actual plume might be 30m in diameter while its model companion is only 10 cm). This is the concept of similarity that allows modelers to simulate a huge cooling tower plume in the convenience of the laboratory, using water instead of air as the working fluid.

The numerator in the Froude number represents kinetic energy (or momentum), the denominator represents potential energy (or buoyancy). If the ratio is much greater than one it means momentum is the predominant source of energy for causing mixing and rise, etc.; the discharge is considered a jet. If the ratio is much less than one, it means buoyancy is the predominant cause of mixing and rise and the discharge is a plume.

For most of the Southern California OCS discharges, the densimetric Froude numbers are less than one, indicating that buoyancy is the predominate cause of mixing and rise and that the discharges are more purely plumes than they are jets. In this respect, the Southern California OCS discharges are similar to cooling tower discharges, in that the densimetric Froude number numbers are frequently less than one and the effluent to ambient velocity ratios are also in the same range.

The Southern California OCS discharges are mostly buoyant for several reasons. It is a combination of temperature and salinity differences that produce large density differences, or buoyancy. However, the low Froude numbers also reflect discharges that combine large diameter discharge pipes with low flow rates. All these parameters are well-modeled by PLUMES-UM, as has been demonstrated in numerous verification studies. In contrast, some models are unable to predict these discharges for various reasons, including numerical limitations. For example, the UDKHDEN model has a numerical scheme that fails to converge at low Froude numbers. This non-convergence is a mathematical artifact that limits neither nature nor PLUMES-UM. This is an important reason to use PLUMES-UM. Other reasons include a combination of factors such as the depth of the discharges compared to the ocean depth, the complex water temperature stratifications, and a higher level of ambient ocean turbulence.

The EPA Regions have implemented the dilution models for OCS discharges in permits in a variety of different ways, depending on regional requirements and preferences. For Region 9, the permit includes instructions to use PLUMES-UM and a set of standardized input parameters that each operator will use. Each operator will calculate the dilution ratio on a quarterly basis and then calculate compliance with the ambient water quality standards. This information will be submitted as part of the Discharge Monitoring Report ("DMR"), including a copy of the PLUMES-UM run and calculations.

It should also be noted that the criteria for using the linear mode for PLUMES-UM were changed in the proposed general permit based on advice from Walter Frick of EPA's Athens, GA laboratory. Mr. Frick indicated that the original proposed criteria (based on Figure 1 in Appendix A in the permit public noticed in July, 2000) would not capture all circumstances where non-linear effects would be important. Mr. Frick also provided alternate criteria which have been included in the proposed general permit. For the proposed general permit, the model may be run in linear mode according to the results of the following test using Figure 1 in Appendix A of the permit: compute (A) the absolute value of the difference (in practical salinity units) between the effluent salinity and the salinity at the effluent temperature for which the density is the same as the ambient density; compute (B) the absolute value of the effluent temperature minus the ambient temperature in degrees C. Linear mode can only be used when the ratio of A over B is greater than 0.5.

e. Establishing Reasonable Potential and Permit Limitations. Establishing reasonable potential can occur either before, during, or after the five-year permit term, depending on the quantity and quality of the available water-quality related discharge data. The Southern California OCS dischargers have been operating under different permits instead of one general permit which means that for most platforms operating under older individual permits, the data collection requirements are not as extensive as the more recently issued individual permits.

EPA has analyzed a set of monitoring data which has been compiled by permittees operating under the previous permits. In two instances, the proposed general permit includes effluent limitations based on reasonable potential to exceed the water quality criteria set forth in Part II.B.1.a of the permit. The effluent limitations are found in Part II.B.1.f of the proposed general permit and were developed in accordance with the procedures and guidance in Chapters 3, 4 and 5 of the TSD. Limits are included for lead at Platform Hogan and benzo (a) pyrene at Platform Gail.

At this time, however, no platform has a sufficient amount of data to perform the analysis to establish reasonable potential for all the parameters of concern listed above. In addition, much of the existing data are quite old and were collected with varying detection limits and quality control. In order to compile a complete data set for all parameters of interest with appropriate detection limits and quality control, EPA is requiring that the dischargers obtain water-quality data (one sample per month) during the first year to perform an adequate analysis. It should be noted that these sampling requirements have been revised from the original requirements of the permit which was certified to the CCC on December 20, 2000. The

previous permit had required ten samples (one sample per quarter) collected over the first 2½ years of the term of the permit. Considering the delays which have occurred in the permit issuance, the revision is being proposed to expedite the reasonable potential analysis. After the dischargers have collected 12 sets of data, the data will be submitted in a spreadsheet format to EPA for establishing reasonable potential. The reasonable potential calculations and permit limitation derivations will be completed in accordance with procedures and guidance contained in Chapters 3, 4 and 5 of the TSD. A separate document entitled "Procedure for Reasonable Potential Evaluation in NPDES Permit CAG280000" has been prepared which sets forth in detail the specific mathematical procedures for evaluating reasonable potential. Section II.B of the proposed general permit requires that these procedures be followed. The proposed permit also includes a reopener clause which provides that the permit may be reopened and modified to include additional water quality-based effluent limitations, as appropriate, based on the results of these analyses. Prior to the development of such effluent limitations, the proposed permit requires compliance with the existing water quality-based effluent limitations in the existing permits (except in the two instances discussed above where limits were established based on the existing data).

Any permit modification to include additional effluent limitations based on the reasonable potential analysis will be conducted in accordance with permit modification procedures at 40 CFR 124.5. These procedures provide the same opportunities for public review and comment as are provided for the original issuance of an NPDES permit; the scope of the review, however, is restricted to the permit modification itself rather than a reconsideration of the entire permit. As such, all interested parties will have an opportunity to review and comment on the reasonable potential analysis and any additional effluent limitations which may be proposed.

During the data gathering and evaluation phase, the proposed general permit also includes enforceable water quality-based effluent limitations from the previous permits which covered the existing production platforms. Subsequent to the data gathering and evaluation phase, the general permit will also be modified to delete these effluent limitations for constituents where no reasonable potential is shown for exceedances of water quality criteria. In addition, the existing monitoring requirements will be modified; where no reasonable potential is shown for a particular constituent, only one sample would be required and must be submitted on the DMR at least 180 days before the permit expires. Permit modifications of this nature are also subject to public review and comment in accordance with 40 CFR 124.5.

It should also be noted that although the full spreadsheet analysis will not be required until one year and three months after the effective date of the permit, the data themselves will be required to be submitted as part of the quarterly monitoring reports. As such, it will be possible to spot any early trends in the data prior to submittal of the spreadsheet analysis. Part I.A.4 of the permit also provides that the permit may be modified if the data indicate that the discharges could cause unreasonable degradation of the marine environment.

f. Detection Limit Issues. The permitting authority must consider how analytical results at low concentrations will be reported when both the criteria and some or all of the analytical results are below the Method Detection Limits ("MDL") and/or the Minimum

Levels of quantitation ("ML") of approved analytical methods. Approved analytical methods for wastewaters regulated under the NPDES program are contained in 40 CFR 136. For this permit, effluent analyses must be conducted using EPA-approved test methods with MLs which are lower than the effluent limitations. In conjunction, the lowest calibration standard must be equal to or less than the ML of the selected analytical method. When a ML is not available under 40 CFR 136, a ML must be calculated using the procedure outlined in the general permit. Additional reporting requirements are also included in the general permit for analytical results at low concentrations.

EPA recognizes that due to matrix interference in produced water discharges, permittees have not always been able to achieve EPA's published (or calculated) MLs for certain pollutants in the discharges. However, due to the large dilution factors for produced water discharges off Southern California (500 or more), matrix interference is not expected to constitute a concern for determining compliance with permit effluent limitations. Although compliance is determined at the edge of the mixing zone, samples are taken at the end-of-pipe. For all the pollutants regulated by the permit for produced water, laboratories utilized by the permittees are able to achieve MLs for the end-of-pipe samples such that after dilution, compliance or noncompliance with the limits at the edge of the mixing zone can be clearly determined.

g. Hydrogen Sulfide in Produced Water. Hydrogen sulfide (H<sub>2</sub>S) is sometimes present in produced water discharged from production platforms on the Southern California OCS. Hydrogen sulfide has the potential to cause adverse ecological impacts. H<sub>2</sub>S toxicity is attributable to the undissociated H<sub>2</sub>S, which compromises approximately 3-8% of the total discharged sulfide in seawater. The dissociation of H<sub>2</sub>S is a function of temperature, pH, and salinity. No observable effect concentrations based on results from chronic toxicity bioassays that assess growth and developmental effects have been reported as low as 4 mg undissociated H<sub>2</sub>S/L.

Previous permits have not included monitoring for this parameter and the occurrence and quantity of sulfide has not been conclusively established. Thus, the platforms will also be sampling for this parameter along with the others to establish the reasonable potential for the treated discharge to cause or contribute to a water quality criteria exceedance. For determining undissociated H<sub>2</sub>S, the revised permit provides that operators may assume of pH of 8.1 and a salinity of 30 g/kg for ambient conditions; this revision is based on a request from operators.

A direct analytical test is not available to determine the amount of undissociated H<sub>2</sub>S present in the discharge. The operators' laboratories must use an alternative test for the analysis of total sulfide by first testing for sulfide (as S) using the titrimetric method and then calculate the amount of un-ionized hydrogen sulfide.

The operators have pointed out to EPA that data establishing the criteria for H<sub>2</sub>S is dated and focuses mostly on fresh water species. During the data collection phase of the permit, the operators may submit relevant studies to the EPA's Office of Research and



Development, Narragansett, Rhode Island, requesting a review of the studies, possibly leading to a change in the criteria for discharges to the Southern California OCS. Alternatively, operators may elect to submit their studies and data directly to EPA Region 9 for reconsideration of the criteria for H<sub>2</sub>S.

2. Whole Effluent Toxicity (“WET”). The whole effluent toxicity approach to toxics control for the protection of aquatic life involves the use of acute and chronic toxicity tests to measure the toxicity of wastewaters. WET is a useful parameter for assessing and protecting against impacts on water quality and designated uses caused by the aggregate toxic effects of the different pollutants in a discharge. WET tests employ the use of standardized, surrogate freshwater or marine plants, invertebrates, and vertebrates. EPA has published extensive protocols listing numerous marine and freshwater species for toxicity testing.

WET tests are used to measure the acute and/or chronic toxicity of an effluent. Chronic toxicity measures a sublethal effect (e.g., reduced growth, reproduction) in an effluent compared to that of the control organism. When conducting a chronic toxicity test, the highest concentration of an effluent at which no adverse effects are observed on the aquatic test organisms is defined as the No Observed Effect Concentration (“NOEC”). Chronic toxicity units (TU<sub>c</sub>) are defined as 100/NOEC.

Produced water toxicity was not limited in previous permits for discharges from oil and gas facilities on the Southern California OCS. However, in view of the variety of pollutants in produced water, EPA believes that WET toxicity is appropriate to measure the aggregate toxic effects of these materials. For the proposed general permit, monthly chronic toxicity monitoring using grab effluent samples is required (at least for the first year of the permit). Chronic toxicity was selected rather than acute based on the results of the MMS studies in the Santa Maria Basin (see Section V.H above) in which no acute toxic effects of produced water discharges were observed.

The proposed general permit requires monthly testing (first year of the permit at a minimum) using the red abalone (*Haliotis rufescens*) larval development test, and annual screening with a plant (giant kelp, *Macrocystis pyrifera*), a vertebrate (topsmelt, *Atherinops affinis*) and an invertebrate (red abalone). The chronic toxicity of the effluent must be estimated as specified in “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms,” EPA/600/R-95/136, August 1995, [or latest version].

If chronic toxicity is detected above the permit monitoring triggers, the permittee will be required to conduct six more tests, one test approximately every three weeks, over an 18 week period. In accordance with the EPA guidance manual entitled “Generalized Methodology for Conducting Industrial TREs” (EPA/600/2-88/070), a Toxicity Reduction Evaluation (“TRE”) will be required to be initiated within fifteen days of the exceedance in order to expeditiously locate the source(s) of toxicity and evaluate the effectiveness of pollution control actions and/or inplant modifications toward controlling the toxicity. If chronic toxicity is detected in any of the

six tests, the permittee is required to initiate a Toxicity Identification Evaluation ("TIE") to identify the specific chemical(s) causing toxicity according to the EPA protocols specified in the permit. If none of the six tests indicate toxicity above the permit monitoring triggers, then the permittee may return to the normal testing frequency.

For the revised permit, EPA is proposing a minor editorial change in Part II.B.2.e.1 of the permit (toxicity testing quality assurance) based on a recommendation from EPA's Richmond laboratory. Since the daily maximum monitoring trigger (DMMT) is always below the monthly average monitoring trigger (MAMT), the five concentrations tested should include one below the DMMT (rather than above), and one above the MAMT (rather than below).

3. Adequacy of the BAT Mud Toxicity Limit in Complying with CWA Section 403(c) Requirements. EPA believes that the BAT toxicity limit for drilling mud (96 hour LC50 of 30,000 ppm) will also ensure that no unreasonable degradation occurs as a result of the discharges. For the previous general permit, EPA had determined, based on a dilution analysis, that a 96 hour LC50 of 20,000 ppm would be adequate to comply with the permit limitations. Dischargers have been operating under this limitation since the permit was first issued in 1982, and EPA is not aware of any data which would indicate that this limit has been insufficient to ensure "no unreasonable degradation" of the marine environment. For example, such degradation was not detected in the MMS-funded studies in the Santa Maria Basin which were discussed above. Because the drilling mud toxicity limit in the proposed general permit is more stringent than the previous limit, the new limit should also be adequate to ensure no unreasonable degradation.

4. Chlorine Monitoring for Reasonable Potential Assessment. The proposed general permit requires end-of-pipe monitoring for chlorine in discharges of noncontact cooling water, hydrotest water and fire control system test water. Monitoring is required for 10 quarters to provide data from which a reasonable potential analysis (similar to that for produced water discussed above) could be performed. Marine water quality criteria for chlorine are 7.5 ug/l (criteria continuous concentration) and 13 ug/l (criteria maximum concentration) (Federal Register Vol. 63, No. 237, December 10, 1998).

5. Maximum Concentration of Chlorine in Sanitary Wastes. The proposed general permit retains the maximum concentration limit of 10 mg/l which was included in the individual permits which EPA issued in 1993. EPA concluded that this limit should be achievable through better operation and housekeeping of existing facilities and would minimize the potential effects of chlorine in the discharge. As noted above, the BCT effluent guidelines require a minimum chlorine concentration of 1 mg/l, maintained as close to this concentration as possible.

6. Chemical Inventory. The proposed general permit requires that permittees maintain (and submit with the DMRs) information concerning chemicals such as corrosion inhibitors, oxygen scavengers and other materials added to hydrotest water, fire control system test water, noncontact cooling water, test fluids and water flooding discharges. EPA does not believe that these discharges will cause unreasonable degradation of the marine environment; however, the

requirement to submit such information will ensure that EPA is kept informed of the nature of materials which are being used. As discussed above, the proposed general permit includes a reopener clause which would allow EPA to reopen and modify the permit to include additional restrictions on the use of chemicals in the discharges as necessary to ensure no unreasonable degradation of the marine environment.

7. Maximum Discharge Rates. The proposed general permit limits the maximum annual quantities of drilling muds, cuttings, excess cement and produced water which could be discharged from all production platforms. These limits were included in response to public comments on previous permits; the limits will more clearly define the maximum environmental impacts of the discharges as recommended by the commenters. The proposed permit includes increased maximum discharge rates (as compared to the December 2000 permit) for produced water from Platforms Harvest, Hermosa and Hidalgo based on updated information from the operator. However, the discharges must still comply with the technology-based and water quality-based effluent limitations discussed above for produced water and EPA does not expect the revisions to cause unreasonable degradation of the marine environment.

8. No Discharge of Chrome Lignosulfonate. EPA has previously prohibited the discharge of chrome lignosulfonate in order to prevent the discharge of the toxic pollutant chromium. The proposed general permit continues this prohibition against chrome lignosulfonate since substitutes are available and the prohibition is an appropriate limit to prevent unreasonable degradation of the marine environment.

9. Barging of Muds to Shore. When the effluent limitations guidelines for drilling fluids were promulgated in 1993, EPA pointed out that various non-water quality factors (such as air emissions, energy use and solid waste management) must be considered in developing the guidelines. The air emissions stemming from the barging of fluids to shore was one factor cited in support of the decision to allow the fluids to be discharged beyond 3 miles from the coast. However, one party has recently recommended that with the advent of lower emissions vessels, EPA should reconsider this decision.

In response, EPA believes that the emissions from barges is still a valid argument supporting the authorization for drilling fluids discharges in the general permit. Industry has provided data showing that the emissions levels for vessels currently in use in the Santa Barbara Channel are comparable to the emissions levels for the vessels considered by EPA in the development of the offshore effluent guidelines. Moreover, as noted above, air emissions are only one of several non-water quality factors to be considered. As such, EPA has not incorporated modified effluent limitations for drilling fluids in the proposed general permit on this basis. However, EPA has included a requirement in the permit that permittees operating under the permit submit (jointly or individually) a report to EPA within 2 years of the effective date of the permit which re-evaluates alternatives to direct disposal of drilling fluids and cuttings at the disposal site (such as onshore disposal, increased recycling and reuse, ocean dumping off-site, and reinjection). The report would also re-evaluate emissions levels from vessels in use at the time of the report. Additional information regarding this report may be found in Section VII.C.2 of this fact sheet.

**I. Best Management Practices.** Best Management Practices (“BMPs”), in addition to numerical effluent limitations, may be required to control or abate the discharge of pollutants in accordance with 40 CFR 122.44(k).

The proposed general permit requires the discharge of surfactants, dispersants, and detergents to be minimized except as necessary to comply with the safety requirements of the Occupational Health and Safety Administration and the MMS. These products contain primarily nonconventional pollutants. This provision has appeared in previous NPDES permits for Southern California OCS oil and gas facilities.

**J. Other Discharge Limitations, Prohibitions and Conditions**

1. **Produced Sands.** In the proposed general permit, EPA prohibits the discharge of produced sands (formerly called "produced solids") as a BAT limit based on EPA's effluent guidelines for the Offshore subcategory. Promulgated BAT for produced sand is “no discharge” based on EPA's determination that these "sands" may be sent to shore on barge trips during regularly scheduled maintenance trips.

In 1993, the promulgated Offshore rule (40 CFR 435.11) defined "produced sand" as slurried particles used in hydraulic fracturing, the accumulated formation sands and scales particles generated during production, desander discharge from the produced water wastestream, and blowdown of the water phase from the produced water treatment system.

2. **No Halogenated Phenol Discharges.** No halogenated phenols could be discharged in accordance with an MMS operations order.

3. **Tracer Materials.** Radioactive tracer concentration above the background in the parent, discharged waste stream shall be limited as given in 10 CFR 20 Appendix B, Table II, Column 2, Effluent Concentrations, Water.

4. **Standard Permit Conditions**

NPDES Regulations at 40 CFR 122.41 and 122.42 require that certain standard conditions be included in all NPDES permits. These conditions have been included in Part IV of the proposed general permit. Industry commenters have expressed concerns regarding the meaning of some of these conditions and suggested certain revisions.

a. **References to Sludge.** A few standard conditions include references to sewage sludge which only apply to publicly owned treatment works (POTWs). Industry commenters suggested that such references be removed since they would not apply to offshore facilities. In response, EPA would point out that such references are relatively few, and EPA did not modify the standard conditions since it should be obvious that they do not apply to offshore facilities.

b. Duty to Reapply. NPDES regulations at 40 CFR 122.41(b) require that permittees reapply and obtain a new NPDES permit to continue discharges after expiration of an existing permit. Industry commenters have expressed concern that this standard condition might conflict with Part I.A.6.c of the general permit. In response, EPA disagrees that there is a conflict. For the general permit, the notice of intent is the mechanism by which a permittee reapplies for coverage.

c. Reporting Requirements. NPDES regulations at 40 CFR 122.41(l)(1)(ii) require that permittees provide notice when physical changes are planned for a permitted facility which would “significantly change the nature or increase the quantity of pollutants discharged.” Industry commenters have raised the issue of whether the word “significantly” modifies only the word “change”, or both the words “change” and “increase.” The commenters indicated that their interpretation would be that both words are modified. EPA concurs with this interpretation.

d. Permittee Transfers. NPDES regulations at 40 CFR 122.41(l)(3) include certain mandatory requirements pertaining to transfer of permit coverage from one permittee to another. Industry commenters have recommended some revised language which would make transfers automatic provided a permittee transfer agreement is developed. In response, EPA believes that the standard language of 40 CFR 122.41(l)(3) should be retained. In transferring a permit from one permittee to another, EPA must consider whether the terms of the permit are appropriate for the new permittee. For example, the capability of the new permittee to comply with the terms of the permit may be different for the new permittee than for the previous permittee. As such, the proposed general permit retains the standard condition from 40 CFR 122.41(l)(3). However, this is not to say that permittee transfer could not be accomplished as a minor permit modification in accordance with 40 CFR 122.63. EPA may also consider MMS findings in its decision on a change of operator of record.

e. Compliance Schedules. NPDES regulations at 40 CFR 122.41(l)(5) include a reference to compliance schedules which industry commenters recommended be removed. The industry commenters contended that general permits do not include compliance schedules and there could be a conflict with the TIE/TRE conditions of Part II.B.4 of the permit. In response, EPA has retained the condition for consistency with NPDES regulations. Further, the TIE/TRE requirements would constitute a compliance schedule and 40 CFR 122.41(l)(5) simply requires that the permittees report the TIE/TRE results in a timely manner.

f. 24-Hour Reporting Requirements. NPDES regulations at 40 CFR 122.44(g) require a list in the permit of any specific pollutants for which 24-hour reporting of violations of daily maximum discharge limitations will be required. Industry commenters recommended that this condition be deleted from the permit since no specific pollutants have been listed. EPA, however, has retained the condition for consistency with NPDES regulations.

g. Duty to Comply. NPDES regulations at 40 CFR 122.41(a)(1) require compliance with effluent standards which may be established under section 307(a) of the Clean Water Act in the time frame which is established even if a permit has not been modified to incorporate the

requirements. Industry commenters suggested that this condition be removed and replaced with alternate language indicating that the permit would be modified to include any effluent standards established under section 307(a). In response, EPA again believes that the condition should be retained exactly as found at 40 CFR 122.41(a)(1) for consistency with the regulations. The alternative suggested by industry would be inappropriate in that it would not clarify that compliance would be required in the time frame established by the regulations regardless of whether the permit had been modified.

## **VI. SUMMARY OF NEW AND CHANGED PERMIT CONDITIONS**

The following discussion is intended to provide a summary of the requirements of the proposed general permit which are substantively different from the 1983 general permit, and various individual permits. For a detailed discussion of the requirements and their bases, please refer to Section III of this fact sheet. Many of the new and changed requirements result from promulgation of the final Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory on March 4, 1993 (see 40 CFR Part 435, Subpart A). As discussed above, the promulgated offshore guidelines apply directly to dischargers on the Pacific OCS, offshore Southern California.

Many of the new and changed requirements in the proposed general permit are the result of the inclusion of water-quality based effluent limits for produced water and any wastestreams which may be commingled with it.

### **A. Drilling Fluids and Drill Cuttings.**

1. Toxicity limit for drilling fluids. In accordance with the Offshore guidelines, a toxicity limit of 30,000 ppm SPP is included in the proposed general permit.

2. Barite. The 1993 effluent limitations guidelines limit mercury and cadmium in barite to 1 mg/kg and 3 mg/kg, respectively. These effluent limitations are included in the proposed general permit, but were not included in some previous permits. Also, as noted previously, the limitation for cadmium for Exxon's Platforms Harmony and Heritage is 2 mg/kg to ensure compliance with Section 402(o) of the Act (anti-backsliding). All other dischargers would be subject to the 3 mg/kg limit for cadmium in barite.

### **B. Produced Water.**

1. Whole Effluent Toxicity. The proposed general permit contains requirements for WET testing, a requirement that was not in previous permits. WET testing will provide EPA with chronic toxicity information.

2. Pollutant Analysis. The proposed general permit includes requirements for sampling of certain pollutants that were not included in previous permits. Twelve sets of data will be collected and provided to EPA for review. If the data indicate the potential to cause or

contribute to exceedances of marine water quality criteria, limitations will be placed in the permit for that particular pollutant and operator.

3. **Dilution Ratios.** The proposed general permit contains specific instructions for calculating dilution ratios using the model, PLUMES-UM. Previous permits used a variety of methods to calculate the dilution.

4. **Oil and grease.** In accordance with the Offshore effluent guidelines, EPA has included oil and grease limits for produced water discharges of 29 mg/l as a monthly average and 42 mg/l as a daily maximum. The numerical oil and grease limits are also applied to the discharge of well treatment, completion, and workover fluids. Limits in the previous permits issued before 1993 were 48 mg/l and 72 mg/l.

### **C. Other Waste Streams.**

1. **Elimination of wastestream.** In accordance with the Offshore effluent guidelines, EPA is prohibiting the discharge of produced sands. This prohibition is found in Part II.G.3 (Other Discharge Limitations).

2. **Combined Wastestreams.** The proposed general permit clarifies that where wastestreams are combined, such as deck drainage with produced water, the more stringent effluent limitations apply.

3. **Chlorine Analysis.** The proposed general permit includes sampling of chlorine discharges from certain large volume discharges to determine if the discharge has the potential to cause or contribute to exceedances of marine water quality criteria for chlorine.

## **VII. MONITORING.**

Section 308(a)(4)(A) of the Act requires a discharger to conduct monitoring to determine compliance with effluent limitations and other permit conditions. The California Coastal Commission, and other parties, have expressed concern regarding the lack of independent, third party monitoring requirements in the proposed permit. "Third-party" monitoring is not specifically defined and connotes different meanings to the various groups involved in this permitting project. It has been requested that EPA include permit language to require the operators to either: 1) independently fund or contract with an independent company to provide sampling services, or 2) have the operators pay EPA or MMS to provide sampling services. After reviewing Section 308 of the CWA and sampling data performed by both EPA and the operators, EPA has chosen not to include these special requirements in the proposed general permit as discussed below (and further discussed in the response to public comments).

When EPA considered this request, we believed that the request should be evaluated by answering two questions. First, is quarterly monitoring by an "independent" entity necessary and second, does the past performance of the operators justify this level of oversight? As noted

above, the Act itself provides for self-monitoring by dischargers themselves rather than third parties.

It has been pointed out on a number of occasions that independent quarterly monitoring is already a requirement for Platforms Irene, Gail, Harmony and Grace which are four of the more recent individual permits to undergo CCC Consistency reviews. Some parties have concluded that if EPA committed to additional monitoring at these facilities, and independent quarterly monitoring is an enforceable policy of the CCC, future permits should include the quarterly monitoring provision.

EPA would like to clarify its position regarding this matter. Although independent monitoring is an enforceable policy of the CCC, it was MMS, not EPA, who agreed to conduct independent quarterly sampling inspections at the above platforms. These were "side-agreements" made between the CCC and MMS as part of the consistency certification, not requirements that were placed in the NPDES permits. It should also be noted that the side-agreements called for MMS to witness regularly scheduled sampling by the operator, not actually take the samples. However, the sampling to be witnessed would be on a day other than the day the operator had originally scheduled; hence the witnessing would be unannounced. MMS made this commitment in good faith to keep the certification process going. However, MMS has indicated that it would be onerous to continue this practice for all of the discharging platforms covered under this general permit. Further, thus far MMS has only been able to observe the sampling rather than conduct the sampling.

To answer the first question of whether independent quarterly monitoring is warranted, EPA collected and reviewed the information described below.

1. 1989 Memorandum of Understanding ("MOU") and Workplans. EPA and MMS have entered into Memorandums of Understanding, both nationwide and regionally. The 1989 Memorandum of Understanding between EPA and MMS contained language committing the agencies to annually negotiate joint sampling inspections. EPA's observations regarding the MOU are:

- i. During the last nine fiscal years, EPA and MMS visited the discharging platforms 92 times.
- ii. For 5 of the 9 years, all discharging platforms were sampled.
- iii. During the last 9 fiscal years, there was only one year that sampling was not accomplished. This occurred in FY96 when Federal employees were furloughed due to lack of funding.
- iv. There were 3 additional years when a workplan was not negotiated but samples nevertheless taken.
- v. At no time during the last 9 fiscal years did EPA and MMS make commitments and then fail to follow them. In most years, more sampling was accomplished than what had been negotiated under the fiscal workplans.



Other parties have expressed concerns that the EPA/MMS sampling plan could be adversely affected by future budget disagreements, such as in 1995/1996 when the Federal government closed most operations for several weeks. Although EPA cannot guarantee that this will not happen again, it is EPA's intention to sample the platforms yearly. EPA and MMS are committed to continue to sample and inspect the facilities using the workplans as a vehicle to track our commitments. Further, in discussions with EPA, staff from the Central Coast Regional Water Quality Control Board (RWQCB) have expressed a willingness to conduct the sampling and inspections in place of EPA/MMS if necessary. A description of the potential role of the Central Coast RWQCB is included in the latest annual monitoring workplan which EPA has developed with MMS.

One party asked for additional clarification concerning Part IV.i of the general permit which provides that at reasonable times, EPA may have access to records maintained under the permit, and may inspect the facility and sample discharges. The party requested additional clarification concerning the meaning of "at reasonable times." Part IV.i of the permit is derived from NPDES regulations at 40 CFR 122.41(i). This condition must be included in all NPDES permits in accordance with 40 CFR 122.41, and is intended to minimize any disruption of normal operations at a facility which may result from EPA inspection and sampling activity. However, it is not intended to prevent EPA from fully evaluating the compliance status of regulated facilities with permit requirements.

2. Operator Sampling Practices. The top priority of the FY98 Workplan was for EPA/MMS to collect the produced water samples. Time constraints in collecting and shipping the samples did not allow for an in-depth review of operator sample collection techniques.

For a variety of reasons, several of the operators use, or intend to use, a contract sampler for their routine NPDES sampling needs. Different operators have different agreements with their contract sampler but, generally, platform personnel do not know the day that the contractor will be performing the sample collection.

During the Spring 1998 sampling effort by EPA and MMS, EPA observed staff from the contract sampler at a number of the platforms. EPA found the contract sampler to be knowledgeable and conscientious about its duties.

3. Past EPA/MMS Oil and Grease Sampling Results. In previous years, EPA and/or MMS have sampled produced water for compliance purposes as negotiated in the annual workplans. In some years, the budget allowed for more intensive sampling of all priority pollutants and other years it may have been limited to just oil and grease tests. In evaluating compliance with permit effluent limitations, EPA has focused on the oil and grease sampling results which have been obtained.

The number of exceedances of permit limits for oil and grease in the EPA/MMS results was 2 exceedances out of 104 platforms sampled during the last 9 years. The number of exceedances in the self-reported results was 5 exceedances out of 104 sampled platforms. These

data show generally good compliance with permit limits and do not support the need for increased oversight of this industry on the Southern California OCS.

4. Concurrent Oil and Grease Sampling Results from the Spring 1998 Sampling Inspections. As negotiated in the FY98 Workplan, EPA and MMS sampled all twelve of the discharging platforms (and 2 of the platforms that intend to discharge). Because the FY98 workplan was designed to support the reissued general permit, the operators agreed to be prepared to conduct concurrent samples with EPA. The operators only knew that EPA would visit the platforms some time during the fiscal year, which is the anticipated inspection schedule for most NPDES facilities.

The results of this sampling showed no oil and grease exceedances in the EPA/MMS data or the concurrent operators' data.

5. MMS Inspection Presence. MMS estimates that its inspectors are present on each Pacific OCS platform at least once every two weeks observing compliance with MMS regulations as well as NPDES permits. EPA believes that in conjunction with MMS activities, an effective inspection program is in place which serves as a strong deterrent to permit violations.

Nationwide, the NPDES program has operated for 25-plus years with the permittees sampling and providing the results to EPA. The regulations provide for several safeguards which protect the integrity of the data including the requirement for a highly placed company official to sign a statement affirming the representativeness and accuracy of the data, the possibility of civil or criminal penalties and jail time, and unannounced inspections. EPA believes that the possibility of enforcement actions and unannounced inspections are adequate deterrents for unrepresentative samples or reporting of inaccurate or misleading data.

With regard to the operator's past performance, EPA has reviewed the data in the above discussion and concluded that the operators are adequately sampling and reporting the data and no additional oversight monitoring is necessary beyond the unannounced inspections that EPA and MMS conduct.

## **VIII. OTHER LEGAL REQUIREMENTS**

**A. Oil Spill Requirements.** Oil spill requirements in the proposed general permit reflect Executive Order 12777 which implements provisions of the Oil Pollution Act of 1990. Executive Order 12777 removed offshore facilities from jurisdiction under EPA and placed them under the jurisdiction of the Department of Interior, MMS. Offshore operators are required to submit Oil Spill Response Plans to MMS for review in accordance with 30 CFR 254.

The effect of the Oil Pollution Act of 1990 and EO 12777 is that operators in state or Federal waters are no longer required by Section 311 of the Clean Water Act to develop Spill Prevention, Control and Contingency ("SPCC") plans.

**B. Endangered Species Act.** The Endangered Species Act (“ESA”) allocates authority to and administers requirements upon Federal agencies regarding threatened or endangered species of fish, wildlife, or plants and habitat of such species that have been designated as critical. Its implementing regulations (50 CFR Part 402) require EPA to ensure, in consultation with the Secretary of the Interior or Commerce, that any action authorized, funded or carried out by EPA is not likely to jeopardize the continued existence of any threatened or endangered species or adversely affect its critical habitat (40 CFR 122.49(c)).

Implementing regulations for the ESA establish a process by which Federal agencies consult with one another to ensure that the concerns of both the U.S. Fish and Wildlife Service (“USFWS”) and the National Marine Fisheries Service (“NMFS”)(collectively “Services”) are addressed. In compliance with Section 7 of the ESA, EPA obtained lists of critical habitat areas and threatened and endangered species from the Ventura Field Office of the USFWS, dated February 28, 1997 and September 3, 1999 and listed species from the Long Beach office of NMFS, dated April 28, 1999 and August 3, 1999.

EPA prepared separate biological assessments (BAs) to assess the potential impacts of the permit reissuance on listed species under the jurisdiction of the USFWS and NMFS. Both BAs concluded that there would be no effect on listed species. EPA provided copies of the original proposed permit and fact sheet along with the appropriate BA to the Long Beach office of the NMFS and the Ventura Field Office of the USFWS for review and comment on EPA’s conclusions concerning the effects of the discharges which would be authorized by the proposed permit on listed species. No comments or concerns were raised by either the USFWS or NMFS.

**C. Coastal Zone Management Act.** The Coastal Zone Management Act (“CZMA”) requires that Federal activities and projects, and Federally permitted activities must be consistent with an approved state Coastal Management Plan (“CMP”) (CZMA Sections 307(c)(1) through (3)). California has an CMP which was approved in 1978; the CZMA authority is the CCC.

On December 20, 2000, EPA submitted a consistency certification to the CCC for the general permit. This consistency certification was submitted pursuant to Section 307(c)(3)(A) of the CZMA for Federally permitted activities. However, CZMA regulations at 15 CFR 930.31(d) suggest that a general permit may be best considered a “Federal agency activity” subject to Section 307(c)(1) of the CZMA (65 FR 77133, December 8, 2000); the regulations also clarify that Federal agencies may choose to subject their general permits to Section 307(c)(3)(A) of the CZMA. On June 11, 2003 (68 FR 34851), the National Oceanic and Atmospheric Administration (NOAA) proposed revisions to the CZMA regulations which would require that general permits be certified as Federal agency activities. As such, although the new NOAA regulations have not yet been finalized, EPA is certifying the revised general permit as a Federal agency activity, and EPA believes this is reasonable given the above factors.

The December 20, 2000 consistency certification was considered by the CCC during a public meeting conducted by the CCC in Los Angeles on January 9, 2001. At the public

meeting, EPA committed to make several changes to the permit in response to concerns raised by the Commission members. With the changes, the CCC concurred that the permit would be consistent with the CMP.

The changes which were made at the January 9, 2001 public meeting are discussed below. However, upon additional consideration of the change pertaining to the applicability of California Ocean Plan (COP) objectives to produced water discharges, EPA is further revising the permit as discussed below. Since this change constitutes a modification of the consistency certification which the CCC concurred upon, EPA is also recertifying the revised permit to the CCC for another consistency review. As noted above, the recertification is being submitted pursuant to Section 307(c)(1) of the CZMA rather than Section 307(c)(3)(A). In accordance with 15 CFR 930.31(d), if the CCC does not concur with the permit, the permit would not become effective for a particular facility until an individual consistency certification had been submitted and concurred upon by the CCC, or the Secretary of Commerce had overridden a CCC objection. The proposed permit effective date under various scenarios is discussed further in Section VIII.C.4 below. It should also be noted that no additional revisions are being made regarding the other changes made at the January 9, 2001 public meeting (regarding study requirements and third party monitoring).

1. COP Objectives for Produced Water Discharges. Since the discharges would occur in Federal waters, the general permit which was certified to the CCC on December 20, 2000 had required compliance with EPA's water quality criteria for the regulated parameters rather than water quality objectives in the COP. However, on January 9, 2001, several Commission members expressed concern that EPA's criteria are less stringent than the COP for certain parameters. To ensure that State waters are not adversely affected, Commission members recommended that the permit require compliance with the more stringent of either EPA's water quality criteria or COP objectives. Given the Commissioners' concerns, EPA agreed at the January 9, 2001 public meeting to amend the general permit in accordance with the following commitment which was read into the record for the public meeting: "the discharge effluent standards that EPA applies shall be either the State water quality criteria set forth in the Ocean Plan that is part of the State's Federally approved CCMP or the national 304(a) criteria whichever is more protective of applicable beneficial uses."

The point of compliance in the permit which was certified to the CCC on December 20, 2000 was the edge of the 100 meter mixing zone defined in the permit. The commitment made at the January 9, 2001 public meeting would apply the more stringent of COP objectives or national 304(a) criteria at the edge of the mixing zone. However, after reconsidering this matter, Region 9 is revising the general permit to apply the COP objectives at the seaward boundary of the territorial seas of the State of California (3 nautical miles from shore). This is precisely what is required by the COP for dischargers outside State waters, and the permit is thus consistent with the COP. EPA also believes that the permit is consistent with CMP; a revised demonstration of consistency has been developed and is being submitted to the CCC.

To implement the revised requirements, each permittee must calculate the dilution occurring at the edge of the 100 meter mixing zone, and at the distance from the platform to the seaward boundary of the territorial seas. The criteria which would apply would be the more stringent of Federal criteria applied at the edge of the 100 meter mixing zone, or COP objectives applied at the seaward boundary of the territorial seas (where additional dilution would occur prior to the reaching the point of compliance). For some parameters, the COP objectives may prove more stringent than the Federal criteria, even with the increased dilution at the point of compliance. The nearest platforms to State waters are Platforms Gina and Hogan which are about 400 meters from State waters. EPA estimates that for a typical discharge, the dilution factor at 400 meters would be roughly double the dilution factor at 100 meters. The distance from the platforms to State waters ranges from 400 meters (Platforms Gina and Hogan) to 11,000 meters (Platform Grace). The platform which is most distant from State waters, and which may discharge produced water is Platform Gail, which is about 10,000 meters from State waters. At this distance, EPA estimates that the dilution factor would be increased about 9-fold over the dilution factor at 100 meters. For a mid-range platform such as Platform Harmony (4,700 meters from State waters), the dilution factor would be increased about 6-fold.

**Table 1 - Water Quality Criteria (in ug/l) for Produced Water Reasonable Potential Determination**

Constituent	Aquatic Life Criteria		Human Health Criteria	
	EPA Criteria	COP 6-Month Median	EPA Criteria	COP 30-Day Average
Ammonia	1,300	600		
Arsenic	36	8		
Cadmium	9.3	1		
Copper	3.1	3		
Cyanide	1	1		
Lead	8.1	2		
Manganese			100	
Mercury	0.051	0.04		
Nickel	8.2	5		
Selenium	71	15		
Silver	1.9	0.7		
Zinc	81	20		
Benzene			71	5.9
Benzo (a) Anthracene			0.049	

Benzo (a) Pyrene			0.049	
Chrysene			0.049	
Benzo (k) Fluoranthene			0.049	
Benzo (b) Fluoranthene			0.049	
Dibenzo (a,h) Anthracene			0.049	
Hexavalent Chromium	50	2		
Phenol			4,600,000	
Toluene			200,000	85,000
Ethylbenzene			29,000	4,100
Naphthalene	not available		not available	
2,4-Dimethylphenol			2,300	
Undissociated Sulfides	2			
Whole Effluent Toxicity	1 TUc	1 TUc (daily max)		

For most parameters in Table 1, the COP aquatic life water criteria are expressed in terms of a 6-month median whereas EPA's criteria are expressed in terms of a criterion continuous concentration (which is a four-day average), and it is not entirely clear which criteria would be more stringent (apart from any differences in dilution at the point of compliance). To answer that question, EPA developed a statistical procedure for comparing the stringency of a 6-month median and a four-day average. The procedure is found in the document entitled "Procedure for Comparing California Ocean Plan 6-Month Median and a 4-Day Average for NPDES Permit No. CAG280000" dated August 16, 2001, and must be used by permittees in preparing their reasonable potential submittal. Reasonable potential and permit limits will be based on the more stringent of:

- a. the COP 6-month median criterion converted into an equivalent four-day average applied at the boundary of State waters, or
- b. the original EPA four-day average criterion applied at the edge of the 100 meter mixing zone.

It is not possible at this time to identify in the permit the more stringent of an EPA criterion or the COP criteria, since this determination depends on the coefficient of variation (CV) of the data which cannot be calculated until all the data have been collected. However, Part II.B.1.c of the permit and the procedure noted above for comparing the EPA and COP criteria will ensure that the more stringent criteria will apply to the discharges. The above

document also provides some sample calculations and a table of conversion factors for comparing a 4-day average and a 6-month median for common CVs.

With regards to the human health criteria in Table 1, there are three parameters for which both EPA and COP criteria are specified (benzene, ethylbenzene and toluene). However, EPA did not develop a conversion factor for comparing the stringency of the EPA and COP criteria since we believe the COP criteria are clearly more stringent in each case. Unlike the EPA aquatic life chronic criteria (which are based on a duration of exposure of four days), the duration of exposure for the EPA human health criteria is considered to be a lifetime. The averaging period for the COP human health criteria is specified as 30 days, and this smaller averaging period would ordinarily result in a larger numerical value for a particular criterion. However, since the numerical values of the COP criteria are smaller than the EPA criteria for each parameter, the COP criteria are clearly more stringent. In determining which is more stringent at the point of compliance (and thus which applies to a given discharge), permittees must simply determine whether the additional dilution which occurs at the boundary of the territorial seas is sufficient to offset the increased stringency of the COP objectives.

## 2. Study Requirements

The original proposed permit had required a study of disposal alternatives for muds and cuttings which would be submitted one year prior to the permit's expiration date. At the public meeting on January 9, 2001, Commissioners expressed concern regarding the timing of the study (four years from the permit's effective date), and the fact that only muds and cuttings would be addressed, rather than including produced water as well. In view of these concerns, EPA agreed at the public meeting to the following commitment which was read into the record:

"The EPA will require, within two years from the effective date of the permit, a study or studies to determine the feasibility, as defined in the CCMP, of disposal of drill muds and cuttings and produced waters by means other than discharge into ocean waters (*e.g.*, reinjection and barging). A platform-by-platform analysis will be included. The EPA will present the study or studies to the Commission within three months after their completion. If alternative methods of disposal other than discharge into ocean waters are defined to be feasible, the permit will be amended or modified to require the alternative method of disposal within one year. The EPA specifically acknowledges that this component of its discharge permit is subject to section 930.65(b) of the federal regulations implementing the federal CZMA. The study or studies shall include an analysis of the continued feasibility of reinjection of produced water for those platforms which currently reinject produced water, and those platforms which currently do not discharge produced water."

Based on the above commitment, Part II.G.6.b of the general permit was revised to the following:

"Within two years of the effective date of this permit, each permittee operating under this permit shall submit to EPA a study or studies to determine the feasibility, as

defined in the California CMP, of disposal of drill muds and cuttings and produced water by means other than discharge into ocean waters (e.g., reinjection and barging). A platform-by-platform analysis will be included. The study shall include an analysis of the continued feasibility of reinjection of produced water for those platforms which currently reinject produced water, and those platforms which currently do not discharge produced water. This permit may be reopened and modified to require additional effluent limitations if alternative means of disposal are determined to be feasible. (Alternatively, permittees may jointly submit the reports; joint submittals shall constitute compliance for those permittees who participate in the preparation of the reports.)”

EPA’s commitment at the public meeting also provides that EPA will present the study or studies to the Commission within three months after their completion. In addition, if alternative methods of disposal other than discharge in ocean waters are determined to be feasible (and otherwise consistent with the Clean Water Act and its implementing regulations), the permit will be amended or modified to require the alternative method of disposal within 1 year thereafter.

EPA further acknowledged that this component of its discharge permit is an integral component of EPA’s consistency certification subject to 15 CFR 930.65(b) of the Federal regulations implementing the Federal CZMA. If EPA fails to do the above, this would constitute a modification subject to 15 CFR 930.65(b) and EPA would be required to submit an amended consistency certification to the CCC.

Since EPA is the permitting authority, it would be inappropriate for the permit itself to include a requirement for EPA to present the study to the CCC within three months, and amend the permit within 1 year (if appropriate). Accordingly, only the portion of the EPA commitment which applies to the permittees is actually set forth in the permit. As noted above, however, EPA is subject to the requirements of 15 CFR 930.65(b) which require that EPA abide by its commitments concerning the study and any future amendments to the permit, or bring the permit before the CCC again. EPA believes that this is consistent with the understanding of the CCC regarding the EPA commitment when the CCC concurred with the general permit in January 2001.

### 3. Independent Third Party Monitoring

EPA also made certain commitments at the public meeting pertaining to third party monitoring to address Commissioner concerns regarding the need for an independent assessment of the compliance status of the permittees with the permit effluent limitations. Specifically, EPA agreed to the following commitment which was read into the record:

“The EPA permit includes regular monitoring of platform discharges. The EPA is committing for the entire term of the permit to independent monitoring along with the MMS, the RWQCB, if necessary, and ensures that the analysis of the data will be conducted. When the EPA is unable to fund the analysis, industry has agreed to cover the laboratory costs. Monitoring results will be reported to the Commission on a



quarterly basis. The carrying out of this independent monitoring program is an integral component of the EPA's consistency certification, pursuant to the CZMA."

EPA again recognizes that the above commitment is an integral component of EPA's consistency certification subject to 15 CFR 930.65(b). If EPA fails to do the above, this would constitute a modification of the program under 15 CFR 930.65(b) and EPA would be required to bring the permit before the CCC again.

As with the study requirements discussed above, it would be inappropriate for the permit itself to include the above commitment by EPA since EPA is the permitting authority. Rather, EPA is again subject to the requirements of 15 CFR 930.65(b) which require that EPA abide by its commitments concerning third party monitoring or submit an amended consistency certification to the CCC. EPA believes that this is also consistent with the understanding of the CCC regarding the above commitment by EPA when the CCC concurred with the general permit in January 2001.

The Western States Petroleum Association (WSPA) has also pointed out that its letter of December 7, 2000 to EPA (which provided the industry funding commitment for laboratory costs mentioned in the above commitment by EPA) only guaranteed funding for the analysis of the reasonable potential parameters of Part II.B.1 of the permit, but not for WET or oil and grease which are also regulated by the permit. Thus, if EPA is unable to fund the testing for WET or oil and grease, EPA would be required to bring the permit before the CCC again. WSPA further pointed out that its funding commitment is only for the level of sampling activity included in the monitoring workplan which EPA and MMS developed for FY 2001 (which calls for six samples of produced water to be tested). If future workplans call for more samples than the FY 2001 workplan, and if EPA is unable to fund the additional tests, EPA would again be required to bring the permit before the CCC.

#### 4. Permit Effective Date if the CCC Objects to the Revised Permit

If the CCC objects to the revised permit, EPA may still issue the permit, but EPA must also notify potential permittees that the permit does not become effective for a particular permittee until the CCC concurs that the permittee's discharges are consistent with the CMP (15 CFR 930.31(d)). This means that each offshore operator would be required to submit an individual consistency certification for each offshore platform, and obtain a concurrence from the CCC prior to the general permit becoming effective for any given platform. It is also possible that the CCC may object to the consistency certification submitted by an operator for an individual platform. However, an operator may appeal an objection to the Secretary of Commerce as provided by 15 CFR Part 930, Subpart H.

As noted previously, offshore operators are currently discharging in accordance with a general permit and eight individual permits, all of which would be terminated when the new general permit becomes effective. To ensure a smooth transition and to provide current

operators time to comply with the new requirements, the effective date of the permit is proposed as follows:

- a. If the CCC concurs with the revised general permit, the effective date would be the first day of the month that begins at least 45 days after Federal Register notice of final permit issuance.
- b. If the CCC does not concur with the revised general permit, the existing general and individual permits would expire within 3 months of the date of the Federal Register notice of final permit issuance for all platforms for which the permittee has not submitted an individual consistency certification to the CCC. For all platforms for which an individual consistency certification is submitted to the CCC, and the CCC concurs with the certification, the new general permit would become effective on the first day of the month that begins at least 45 days after the date of the CCC concurrence.
- c. For all platforms for which an individual consistency certification is submitted to the CCC, and the CCC does not concur with the certification, the existing general permit and individual permits for the platforms would expire within 30 days of the date of the CCC's objection decision for all platforms for which the permittee has not submitted a timely appeal to the Secretary of Commerce in accordance with 15 CFR 930.125.
- d. For all platforms for which a timely appeal is filed with the Secretary of Commerce, and the Secretary overrides the CCC's objection, the new general permit would become effective on the first day of the month that begins at least 45 days after the date of the Secretary's decision.
- e. If the Secretary of Commerce upholds a CCC objection which has been appealed by the permittee for a platform, the new general permit would not become effective for that platform.

As described above, if the CCC objects to the new revised general permit, the existing permits would expire for all platforms for which an individual consistency certification is not submitted by the operator within three months of Federal Register notice of final permit issuance.

This provision will ensure that operators expeditiously submit their consistency certifications since their existing permits would otherwise terminate. EPA believes that three months is a sufficient amount of time for operators to prepare and submit their certifications. Similarly, if the CCC objects to an individual consistency certification, the existing permits would expire within 30 days unless the permittee files a timely appeal with the Secretary of Commerce. (In accordance with 15 CFR 930.125 appeals must be filed within 30 days of CCC objection.) This provision will ensure that permittees continue to actively pursue coverage under the new general permit, rather than continuing to discharge indefinitely under existing permits.

If the Secretary of Commerce overrides a CCC objection in accordance with 15 CFR 930.130(e)(1), the general permit would go into effect in accordance with (d) above. If the

Secretary upholds an objection, 15 CFR 930.130(e)(2) provides that EPA “shall not approve the activity.” This means that the general permit could not become effective for the platform, and EPA would have to repropose a new general permit or individual permit and submit a new consistency certification to the CCC. The new permit could not apply to a given platform until the CCC concurred with the new permit. EPA cannot predict how much time may be necessary to ultimately resolve the consistency issue under the various scenarios discussed above. As such, the existing permits would remain in effect (with the limitations discussed above) while the issue was being addressed.

If the CCC objects to the general permit, new exploratory operations and additional development and production facilities (which are not new sources) would also have to submit a consistency certification to the CCC. The permit would also not become effective for these facilities until the consistency issue was resolved.

#### 5. Arguello, Inc. Development and Production Plan Revisions for Platforms Hidalgo and Hermosa

On June 12, 2003, Arguello, Inc. submitted a revised Development and Production Plan (DPP) to the CCC for Platforms Hidalgo and Hermosa for the development of the eastern half of OCS parcel P-0451. In the revised DPP, Arguello, Inc. committed to comply with the effluent limits for produced water which the CCC concurred upon at the January 9, 2001 public meeting (i.e., the more stringent of effluent limits based on EPA water quality criteria or COP objectives applied at the edge of the 100-meter mixing zone). However, EPA has not included these special effluent limits for Platforms Hidalgo and Hermosa in the proposed general permit. EPA believes the special effluent limits are best considered to be a commitment by Arguello, Inc. to the CCC which would be enforced through this commitment. As such, the general permit includes one uniform set of effluent limits for all platforms.

**D. Maritime Protection, Research, and Sanctuaries Act.** The Channel Islands National Marine Sanctuary was designated in 1980 and encompasses approximately 4,296 km<sup>2</sup> in the Southern California Bight. The sanctuary boundaries include the ocean area extending from the mean high-tide line to a distance of 11.1 km around San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara Islands. The islands themselves are not part of the sanctuary but constitute the emergent portion of the Channel Islands National Park. The seaward boundary of the park extends 1.85 km offshore.

Sanctuary regulations (15 CFR Part 922.71) provide a list of activities that are prohibited and thus unlawful for any person to conduct or to cause to be conducted within the Sanctuary. No production operations authorized by this general permit are within the Sanctuary boundaries.

In commenting on the original proposed permit, MMS noted that a Sanctuary Advisory Committee is currently undertaking a Management Plan Review for the Channel Islands Marine Sanctuary. EPA cannot be sure what may come from this review, but the permit includes a reopener clause which provides that the permit may be reopened and modified if new information

indicates that the discharges may cause unreasonable degradation of the marine environment. The issuance of individual permits may also be appropriate for some facilities depending on the outcome of the review. However, if new sanctuary regulations result from the review, any permit modifications made during the term of the permit would have to be consistent with NPDES regulations at 40 CFR 122.62(a)(3), which place certain restrictions on modifications based on new regulations, including new sanctuary regulations.

**E. Magnuson-Stevens Fishery Conservation and Management Act.** The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act set forth a number of new mandates for NMFS, regional fishery management councils, and Federal agencies to identify and protect important marine and anadromous fish habitat. Regional fishery management councils, with assistance from NMFS, are required to delineate EFH.

The Magnuson-Stevens Act requires that Federal agencies consult with NMFS on all actions undertaken by the agency which may adversely affect EFH. In accordance with these requirements, EPA prepared an assessment of the effects of the proposed discharges on EFH in the area covered by the permit. As noted earlier, the EFH assessment was revised based on public comments on the EFH assessment which accompanied the original proposed permit. However, the revised assessment retains the conclusion of the previous version that while there may be effects on EFH from certain discharges near an outfall, these effects should be minor overall given the small area which may be affected relative to the size of the EFH off the Pacific Coast, and the mitigation provided by the various effluent limitations of the permit.

On October 4, 2000, EPA provided a copy of the revised EFH assessment to NMFS to initiate a consultation. In a letter dated October 20, 2000, NMFS provided its response, which includes the following Conservation Recommendations with regards to produced water discharges:

1. Require oil and gas platform operators to evaluate the direct lethal, sublethal, and bioaccumulative effects of produced water on Federally-managed fish species (e.g., blue rockfish, bocaccio rockfish, brown rockfish, olive rockfish and lingcod) at key life stages (e.g., juvenile and adult) occupying the mixing zone of produced water effluent discharges.
2. Model dilution and dispersion plumes from the point of produced water discharge to determine the extent of the area in which Federally-managed fish species may be adversely affected.
3. Develop appropriate mitigation measures (i.e., alter discharge rates or relocate discharge pipes) should information from the two previous recommendations indicate that substantial adverse effects to Federally-managed species or EFH do occur.
4. Continue to implement provisions in the general permit that provide for the issuance of individual permits including limitations on rate of drilling discharges, duration of discharges,

depth of discharges or whether drilling muds and cuttings discharges are allowed at all should overall mud toxicity limits as stated in the general permit be exceeded.

In making the above Conservation Recommendations, NMFS contended that EPA's EFH assessment had not adequately evaluated the potential adverse effects on Federally-managed fish species within the mixing zones for the produced water discharges from the production platforms. Although the EFH assessment does provide considerable information on this matter, EPA believes that we should defer to the judgment of NMFS on the question of its adequacy in protecting the resources for which NMFS is responsible. Accordingly, Part II.H was added to the general permit which requires that the permittees submit the information required by Conservation Recommendations #1 and #2 above. This information is required within six months of the effective date of the permit. In addition, pursuant to Conservation Recommendation #3 above, Part II.H requires that permittees submit proposed mitigation measures if the information shows that the discharges would cause substantial adverse effects to Federally-managed species or EFH.

The general permit also includes a reopener clause (Part II.H.2) which provides that the permit may be modified to include additional effluent limitations, monitoring requirements or other mitigation if the submitted information indicates that the discharges are having significant adverse effects on Federally-managed species or EFH. This reopener clause was included in response to Conservation Recommendation #3 above.

EPA anticipates that the evaluations required by Part II.H.1.a and b of the permit would not necessarily involve additional laboratory or field work, but could consist of a more focused and detailed analysis of the specific issue of concern to NMFS (i.e., the potential effects of the discharges within the mixing zone) than was provided in EPA's EFH assessment. By focusing on this one issue, it may be possible to address NMFS's concerns based on existing literature information. However, if the submittal which is due within six months is inadequate in addressing NMFS's concerns, the permit may be reopened (in accordance with Part II.H.2) to require additional analyses which could involve additional laboratory or field studies. EPA would review the initial submittal and then forward it to NMFS with a recommendation as to its adequacy. EPA anticipates that this review would take one to two months, and would constitute a continuation of the consultation which commenced on October 4, 2000. It should also be pointed out that the ultimate decision on the adequacy of the submittal, and whether the permit would be reopened to require additional studies or mitigation, rests with EPA.

EPA intends to require individual permits when the terms and requirements of the general permit are inappropriate in accordance with Conservation Recommendation #4. However, as noted in the Conservation Recommendation itself, the permit already provides for this and the permit was not modified in response to Conservation Recommendation #4.

EPA also believes that the reissuance of the general permit prior to having fully resolved EFH issues would not irreversibly prevent implementation of additional EFH mitigation measures. Although the proposed general permit includes a number of new requirements for

produced water discharges (such as more stringent oil and grease limits), EPA believes that the mitigation measures suggested by NMFS (e.g., alter discharge rates or relocate discharge pipes) would still be available to operators regardless of any actions that may be required to comply with the new general permit requirements. Hence, EPA's action of reissuing the general permit at this time would not preclude any additional mitigation measures which may eventually be required for the protection of EFH.

During the time period in which the effects of the produced water discharges are being further analyzed, EPA believes that the discharges would not cause irreparable harm to EFH. EPA's EFH assessment noted that Gulf of Mexico studies had found that bioaccumulation in marine organisms was not occurring to any significant degree in the vicinity of production platforms, and that similar results would be expected for California. In addition, the EFH assessment cited acute and chronic toxicity tests for produced water which indicate that any impacts would generally be restricted to well inside the mixing zone. However, to provide additional perspective on potential effects within the mixing zone, EPA conducted some additional modeling of produced water discharges using the PLUMES model. Previous modeling results submitted by industry show that expected dilutions of produced water discharges on the California OCS range from about 500 to over 3,000 at the edge of the 100-m mixing zone. To investigate how rapidly dilution occurs within the mixing zone, EPA looked at two discharges (10,000 bbls/day and two different temperatures) which result in dilutions at the edge of the mixing zone of about 430 and 730 to one, respectively (at the low end of the results reported by dischargers). The EFH assessment had noted acute toxicity results of produced water discharges in the Gulf of Mexico ranging from 7,000 ppm to 408,000 ppm (California results ranged from 70,000 ppm to 100,000 ppm but only one species was tested). Using the worst case Gulf of Mexico result, a dilution of approximately 140 to one is needed to dilute the discharge below the acutely toxic level. The additional modeling conducted by EPA showed that this dilution would occur at about 12½ meters and 7½ meters, respectively, from the outfall for the two cases described above. EPA believes that these results do show that the volume of water in which adverse effects may occur is indeed limited.

EPA's EFH assessment also reported chronic toxicity results for California produced waters (for three species) ranging from 1,900 ppm to 200,000 ppm. For the worst case result here, a dilution of 526 to one would be required to dilute the discharge below the chronic toxicity concentration; this dilution is comparable to the lowest expected dilution from any of the California OCS platforms at the edge of the mixing zone. However, for most cases, the required dilution would occur closer to the outfall. EPA's modeling showed that the bulk of the dilution which occurs within the mixing zone occurs within the first 30 to 35 meters from the outfall. For example, for the two cases discussed above, approximately 65% and 75%, respectively, of the dilution occurred within the first 30 meters. As such, for the more common situation on the California OCS of a dilution factor of at least 1,000 to one at the edge of the mixing zone, adequate dilution to reduce the discharge concentration below the chronic toxicity level would be expected less than 30 meters from the outfall. EPA believes that these results again show the limited nature of the potential effects of the most discharges. As pointed out above, the general

permit requires additional modeling by the permittees to more precisely define the potential zones of impacts of each discharge.

EPA also recognizes the tendency of fish to congregate around platforms, a factor which could exacerbate potential effects of produced water discharges on EFH species. EPA's EFH assessment cited estimates which have been made that platform habitat may be 6-10 times more valuable than soft substrate habitat which is the most common natural habitat type on the Pacific OCS (platform habitat was estimated to be comparable in value to natural hard bottom habitat). However, the combined mixing zones of all 22 production platforms covered by the proposed general permit constitute only 0.036% of the 83 leases covered by the permit, and a much smaller fraction of EFH on the Pacific Coast which extends from the shoreline to the 200-mile boundary of the Exclusive Economic Zone. As such, despite the relatively high value of platform habitat in comparison to soft bottom habitat, the total value of the habitat provided by all 22 platforms combined is still very small in comparison to total soft bottom EFH off the Pacific Coast. Furthermore, with regards to hard bottom habitat, NMFS itself has estimated that the amount of platform habitat on the Pacific OCS is "proportionally insignificant" in comparison to total hard bottom habitat.

In summary, while EPA believes that the discharges are not a significant threat to EFH, EPA will be working further with NMFS as described above to better understand the effects of the discharges and address NMFS's concerns.

EPA provided its response to the NMFS Conservation Recommendations in a letter to NMFS dated November 21, 2000. However, EPA discussed its response with NMFS staff prior to sending the letter of November 21, 2000. NMFS staff indicated that the new permit requirements would be appropriate to address the concerns raised in NMFS's letter of October 20, 2000.

**F. ANNEX V OF MARPOL (33 CFR 155.73).** Under Annex V of the International Convention for the Prevention of Pollution from Ships, the U.S. Coast Guard ("USCG") has issued interim final regulations under 33 CFR 151.73 to control the disposal of garbage and domestic wastes from fixed or floating platforms. These regulations include those platforms involved in the exploration and exploitation of oil and gas resources, such as oil drilling rigs and production platforms. These regulations apply to all such vessels when in navigable waters of the U.S. or within the 200 mile Exclusive Economic Zone. The proposed general permit prohibits the discharge of garbage (as defined at 33 CFR 151) within 12 nautical miles of the nearest land. The term "garbage," as it is applied here, includes operational and maintenance wastes. Further clarification of wastes covered under these regulations can be found at 33 CFR 151. Beyond 12 nautical miles from the nearest land, the discharge of food wastes that are ground so as to pass through a 25 millimeter mesh screen, will be permitted (Part II.G.7 of the permit). These requirements are already part of the USCG regulations and are incorporated into the permit for consistency.

**G. Paperwork Reduction Act.** The information collection required by this permit has been approved by Office of Management and Budget ("OMB") under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et. seq.*, in submission made for the NPDES permit program and assigned OMB control numbers 2040-0086 (NPDES permit application) and 2040-0004 (discharge monitoring reports).

**H. Economic Impact (Executive Order 12866).** Under Executive Order 12866 (58 Federal Register 51735 (Oct. 4, 1993)), the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

EPA has determined that the proposed general permit is not a "significant regulatory action" under the terms of Executive Order 12866.

**I. Unfunded Mandates Reform Act.** Section 201 of the Unfunded Mandates Reform Act ("UMRA"), Pub. L. 104-4, generally requires Federal agencies to assess the effects of their "regulatory actions" on State, local, and tribal governments and the private sector. UMRA uses the term "regulatory actions" to refer to regulations. (See, e.g., UMRA Section 201, "Each agency shall . . . assess the effects of Federal regulatory actions . . . (other than to the extent that such regulations incorporate requirements specifically set forth in law)"). UMRA Section 102 defines "regulation" by reference to Section 658 of Title 2 of the U.S. Code, which in turn defines "regulation" and "rule" by reference to Section 601(2) of the Regulatory Flexibility Act ("RFA"). That section of the RFA defines "rule" as "any rule for which the agency publishes a notice of proposed rulemaking pursuant to Section 553(b) of [the Administrative Procedure Act ("APA")], or any other law . . . ."

As discussed in the RFA section of this notice, NPDES general permits are not "rules" under the APA and thus not subject to the APA requirement to publish a notice of proposed rulemaking. NPDES general permits are not subject to such a requirement under the Clean Water Act. While EPA publishes a notice to solicit public comment on draft general permits, it does so pursuant to the CWA Section 402(a) requirement to provide "an opportunity for a hearing." Thus, NPDES general permits are not "rules" for RFA or UMRA purposes.

EPA has determined that the proposed general permit does not contain a Federal requirement that may result in expenditures of \$100 million or more for State, local and tribal governments, in the aggregate, or the private sector in any one year.



EPA also believes that the proposed general permit will not significantly nor uniquely affect small governments. For UMRA purposes, "small governments" is defined by reference to the definition of "small governmental jurisdiction" under the RFA. (See UMRA Section 102(1), referencing 2 U.S.C. 658, which references Section 601(5) of the RFA.) "Small governmental jurisdiction" means governments of cities, counties, towns, etc., with a population of less than 50,000, unless the agency establishes an alternative definition.

The proposed general permit also will not uniquely affect small governments because compliance with the permit conditions affects small governments in the same manner as any other entities seeking coverage under the general permit.

**J. Regulatory Flexibility Act.** Under the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, EPA is required to prepare a Regulatory Flexibility Analysis to assess the impact of rules on small entities. Under 5 U.S.C. 605(b), no Regulatory Flexibility Analysis is required where the head of the Agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.

EPA takes the position that NPDES general permits are not subject to rulemaking requirements under APA Section 553 or any other law. The requirements of APA Section 553 apply only to the issuance of "rules," which the APA defines in a manner that excludes permits. See APA Section 551(4), (6) and (8). The CWA also does not require publication of a general notice of proposed rulemaking for general permits. EPA publishes draft general NPDES permits for public comment in the Federal Register in order to meet the applicable CWA procedural requirement to provide "an opportunity for a hearing." CWA Section 402(a), 33 U.S.C. 1342(a).

